

**UCL**  
**Rapa Nui Landscapes of Construction**  
**Project**  
**LOC18**

**The LOC boat-shaped house survey, 2010–19**



*Looking beyond the received orthodoxy*

The UCL Rapa Nui Landscapes of Construction Project

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*UCL Rapa Nui Landscapes of Construction Project Interim Reports, 18* (LOC18)

*The LOC Boat-shaped House Survey, 2010–19:  
Looking Beyond the Received Orthodoxy*

text by Mike Seager Thomas



## UCL Rapa Nui Landscapes of Construction

The Rapa Nui Landscapes of Construction Project (LOC) was based at the University College London Institute of Archeology, and directed by Professor Sue Hamilton, of the UCL Institute of Archaeology, in collaboration with Dr Felipe Armstrong, of the Museo Chileno de Arte Precolombino, and Tikitehatu Astete, Rapanui researcher. Fieldwork was supervised by Mike Seager Thomas, also of the UCL Institute of Archaeology.

On the island, LOC worked with Rapanui elders and students and in close cooperation with the *Corporacion Nacional Forestal*, Rapa Nui (CONAF), the *Ma'u Henua* indigenous community organisation, the *Museo Antropológico P. Sebastián Englert* and STP Rapa Nui.

The main aim of the project was to investigate the construction activities associated with the island's famous prehistoric statues and architecture as an integrated whole. These construction activities, which include the quarrying, moving and setting up of the statues were considered in terms of island-wide resources, social organization and ideology.

LOC was not just concerned with reconstructing the past of the island, but also actively contributed to the "living archaeology" of the present-day community, for whom the former is an integral part of its identity. It worked with the Rapanui community to provide training and help in recording, investigating and conserving its archaeological past.

The bulk of the recording for the LOC boat-shaped house survey was carried out in 2013 and 2016 by Felipe Armstrong, Jeremy Butler, Sue Hamilton, Francisca Pakomio, Mike Seager Thomas, Adam Stanford and Ruth Whitehouse. Additional help in the field was provided by Tikitehatu Astete Paoa, Julio Haoa Avaka, Colin Richards, Louise Schlee and Lawrence Shaw. The present report was prepared by Mike Seager Thomas and page set and published for LOC by Artefact Services.

2025

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# The LOC boat-shaped house survey, 2010–19

## Looking beyond the received orthodoxy

text by Mike Seager Thomas

The *hare paēa* (boat-shaped house) is one of a recurrent set of archaeological feature types fashioned from stone which, for the visitor today, characterise Rapa Nui's archaeological landscape. Like the other components of this set —*ahu*, *moai*, *hare moa/avanga*, petroglyphs, *taheta*, *umu*, etc., there were and are, in varying states of preservation, hundreds of these, most associated with one or more of the foregoing feature types, many clustered around coastal *ahu*, and others isolated, or in small groups in locations at some distance from the nearest known *ahu*.

The *hare paēa* or, as it is sometimes known, the *hare vaka* is named for its assumed use as a dwelling/house (*hare*), its foundations or curb, which above ground comprise rectangular dressed stones with circular holes in their upper surfaces (*pu paēa*; *pu*, hole, and *paēa*, dressed stone), laid out in a whole or partial ellipse-shape, and its former superstructure, which is widely reported to have resembled the hull of an upturned boat (*vaka*).

Our principal sources of knowledge about *hare paēa* are four-fold. First is the structure and distribution of the many surviving *hare paēa* foundations on the island (LOC visited nearly a hundred of these) (**Appxs 1, 4–9**); second, is the record made of them by early Western visitors to the island (**Appx 2**); third are a handful of petroglyphs depicting them; and fourth, a number of illustrations and photographs of small, but analogous, boat-shaped buildings, which continued to be used by indigenous Rapanui into the early 20th-century (**Appx 2**).

Not all *hare paēa* were contemporaneous of course. As we shall see, a conception of *hare paēa* "villages" focused on *ahu* favoured by some commentators is difficult to sustain. But *hare paēa* were nonetheless a recurrent feature of the island's pre-Colonial constructed landscape. Even ruined, they were mnemonic of earlier generations; they were physically linked to the island's wider ceremonial-religious complex; they provided a source of convenient, and possibly meaningful building materials; and at their best they mark a high-point in the island's architectural culture, the stone work in them as good as in *moai* and the best *ahu*.

Nonetheless important issues surrounding them have remained unaddressed, or only inadequately addressed. (Work on houses, even in Rapa Nui, does not have same professional cachet as working on *ahu* or *moai*). These issues include *hare paēa* form, materiality and distribution, and *hare paēa* construction, role and abandonment, and the meaning or meanings of these in the wider context of Rapa Nui's archaeology and Rapa Nui's Landscapes of Construction. All of these were informed by LOC's work on the island, and are addressed in detail here.





**Figures 1–2**

*Hare nui* curb (LBS\_002) and shorter, *hare paepa* curb with a surviving entrance structure (LBS\_045). At approximately 40m long, LBS\_002 is the longest surviving boat-shaped house on the island. The c. 11m of curb in LBS\_045 is more typical.

Scale 2m (photos: Adam Stanford, Aerial Cam, MST)





## PRE-EXISTING VIEWS ON RAPA NUI BOAT-SHAPED HOUSES

Previous commentary on *hare paenga* and other Rapa Nui boat-shaped houses has considered their form, context and distribution, with interpretation focusing on house use, house status, social organisation and settlement patterning. Some attempts have also been made to place them in chronological context. Hard data on house form, use and settlement patterning comes from the record made of them by early Western visitors (**Appx 2**) and—up to a point—from superficial and excavated archaeological evidence (e.g. Mulloy, 1961, p. 137; Smith, 1961a; 1961b; Vargas, 1998), whereas the interpretation(s) of status, social organisation and settlement patterning, in cases where these add to or differ from that reported by early Western visitors, is inferential,

**Figure 3**

*Poro* pavement of crescentic shape belonging to a boat-shaped house which has either lost or never had a stone curb. Located near to the Ara Moai south (AMS\_147) (LOC, 2014a). Not included in the present survey. Scale 0.5m (photo: MST)



and based on generalisations about house “quality”, the proximity of houses of different quality and type to *ahu*, the resources thought necessary to build them, and some—sometimes—questionable and frequently unstated assumptions about the dates and completeness of those studied (e.g. Bahn and Flenley, 2014, p. 153; Métraux, 1971 [1940], p. 195; Stevenson, 2002, pp. 223–24; Vargas *et al.*, 2006, 183–220).

Two or three types of boat-shaped house (which in fact formed a continuum of related structures) are recognised—very large *hare paenga*, known as *hare nui* (Métraux, 1971 [1940], p. 201; Vargas *et al.*, 2006, pp. 214–19), standard *hare paenga*, and analogous structures, which either never had a stone curb, or from which the curb has been removed (**Figures 1–3**). The superstructures of all these houses consisted of a pointed arch fashioned



from local shrubs such as *Toromiro*, banana leaves, sugar cane leaves or reeds and grass (*mauku*), which tapered to the ground at each end forming the eponymous upturned boat-shape (Cook, 2007 [1777], p. 180; Geiseler, 1995 [1882], p. 75; Roggeveen, 1908 [1722], pp. 17–18) (**Figure 4**). The



**Figure 4**

Contemporary take on the *hare paenga* constructed by the *Ma'u Henua* indigenous community organisation (photo: MST)

curbs of *hare paenga* are elliptical, or supposed to have been (in fact many have no ends at all) (**Figure 2; figure 5**). The rectangular dressed stones comprising these have vertical holes (*pu*) in their upper sides, which supported their superstructures (**Figure 6**), whereas in elliptical houses without *paenga*, the sticks of the superstructure were stuck directly into the ground (*ibid.*). According to most accounts, entry was on hands-and-knees through a gap in one of the long sides (Bouman, 1994 [1722], p. 99; Cook, 2007 [1777], p. 180; Forster, 2000 [1774], p. 307; La Pérouse, 1792a, p. 88–89; Roggeveen, 1908 [1722], p. 18), which in *hare paenga* is often spanned by a low “threshold stone” and flanked by two or more passage stones, distinguishable from curb stones by their *pu*, which are paired and penetrate the stone (**Figure 7–8**). Often *pu paenga* and these passage stones were demonstrably reused (e.g. Smith, 1961a, p. 281; 1961b, p. 287; Vargas *et al.*, 2006, p. 206). On the entrance-side, a crescent-shaped pavement, or the remains of one, often survives, fashioned from water-rolled boulders (*poro*) usually laid directly on the natural land surface. Smaller *poro* embedded into the ground often continue the pavement into the entrance passage (e.g. Routledge, 1919, fig. 85) (**Figure 9–10**). Where such a pavement exists, but no curb, the former existence of an elliptical building without a curb, or from which a stone curb has been removed, is inferred (**Figure 3**).

The dark, empty interior of these houses was used for community

sleeping, protection from the weather and *perhaps*—accounts contradict each other here—eating; while the exterior pavement was used for sitting and talking (Geiseler, 1995 [1882], pp. 76; Gilbert, 2008 [1774], p. 17; Forster, 2000 [1774], p. 307; Routledge, 1919, p. 216).

Their use as community dormitories notwithstanding, *hare paenga* tend to be described as “elite” dwellings, inhabited by chiefs or religious celebrants (e.g. De Agüera y Infanzon, 1908 [1770], p. 102; Bahn and Flenley, 2014, p. 153; Martinsson-Wallin and Wallin, 2014, pp. 334, 338; Routledge, 1919, p. 263; Skjölsvold, 1961, p. 275 [a *hare nui*]; Vargas, 1998, p. 117), which were sometimes burnt, robbed or otherwise slighted as a result of local and intra-island rivalries (e.g. Eyraud, 2004 [1864], pp. 26, 31–32; Mulloy, 1961, p. 137; Routledge, 1919, pp. 216, 224). A lack of domestic finds from *hare paenga*, associated soils ruined by marine salt, a perceived absence of associated agricultural-type features, such as *manavai*, and their often close proximity to and perceived orientation on *ahu*, has also led commentators to infer a ritual or non-functional character or role for them (Bouman, 1994 [1722], p. 99; Hunt and Lipo, 2011, pp. 25–26; Vargas, 1998, pp. 117, 119, 127–128). Indeed, on analogy with Polynesian practice elsewhere, any number of non-functional associations for them can be postulated. Thus the recurrent reuse of *pu paenga* in them has led to a belief, current amongst some Rapanui, that *hare paenga* consciously referenced their builders’ “ancestors” (Beno Atan pers. comm.), while entry and egress is perceived to embody for the Rapanui, the transition from the everyday world of Ao to the sacred darkness of Po (Hamilton and Richards, 2016, p. 97). By contrast, the location of most inland houses, irrespective of whether they have elliptical stone foundations or not, far from *ahu*, and their association with inferred better soils and agricultural-type features, suggests for these a lower status and a more everyday socio-economic role (Vargas, 1998, pp. 119, 127).

The largest groups of *hare paenga*, indeed most *hare paenga*, are in fact located at ceremonial-religious complexes—Rano Raraku, the principal *moai* quarry (Skjölsvold, 1961, p. 291–93), and at major coastal *ahu*, such as Akahanga, Te Peu, Tonjariki and Vai Mata. At the former, they ring the crater, facing downhill out from the quarry (Cristino *et al.*, 1981, pl. xix); at the later they are *mostly* located at some distance from the *ahu*, facing downhill towards the sea.<sup>1</sup> Groups of these sorts are widely described as “villages” (e.g. Bahn and Flenley, 2014, p. 153; Martinsson-Wallin and Wallin, 2014, pp. 334, 338; Mulloy, 1961, p. 135; Stevenson, 2002, p. 223; Vargas, 1998, p. 117), implying both contemporaneity and relatively large populations, and begging the question why some *ahu* had villages and others not (e.g. Martinsson-Wallin and Wallin, 2014). The greatest number of houses recorded in any settlement is 20 (Behrens, 1908 [1722], p. 136), more than now survive at any major *ahu*. Most settlements, however, including some at major *ahu*, appear to have comprised comprised far fewer (e.g. La Pérouse, 1797a, p. 89).

The longevity of the *hare paenga* is attested scientifically by a handful of obsidian hydration and radiocarbon dates (Stevenson and Cristino, 1986; Vargas *et al.*, 2006, p. 217–19), stratigraphically by the extensive reuse of *pu paenga* in *hare paenga* and the incorporation of *pu paenga* in other prehistoric structures (Hamilton, 2010, p. 72; Métraux, 1971 [1940], p. 196; Stevenson

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<sup>1</sup> Unpublished survey work by Rapanui architect Hetereki Huki suggests that if the slope of the ground on which a *hare paenga* was located faced away from an *ahu*, so did the entrance of the *hare paenga*.





**Figure 5**

*Hare paenga* curb end comprising two curved *pini* (LBS\_040). Most reconstructions show houses with such ends but houses with ends, fashioned from *pini* or in some other way are in fact rare. Scale 0.5m (photo: MST)



**Figure 6**

*Pu paenga* with unusually large *pu* (LBS\_016). Scale 0.1m (photo: MST)





**Figure 7**

Passage stones set *inside* the curb (LBS\_028). Note how *pu* on passage stones penetrate the stones (*photo: MST*)



**Figure 8**

*Pu paena* entrance threshold stone, passage stones set *outside* the curb, and passage terminal pillars (LBS\_008) (*photo: MST*)





**Figures 9–10**

*Hare paenga* pavements. *Hare paenga* pavements are usually placed directly on the landsurface (top left) (LBS\_071). The *poro* in them are often graded in individual pavements from large to small (bottom) (LBS\_085), while those in the entrance passageway or, where this is absent, outside the threshold, are often of small size (top right) (LBS\_033). Scale 0.5m (photos: Lawrence Shaw, MST, Adam Stanford, Aerial Cam)





and Cristino, 1986, p. 31) (such as *ahu*, *avanga*, *umu* and modified caves), and ethno-historically by the reports of early Western visitors such as La Pérouse, who saw a massive *hare nui* under construction (La Pérouse, 1797a, p. 88), and Geiseler, who noted that “only a short time ago did they start giving up this type of architecture” (Geiseler, 1995 [1883], p. 76). In LOC’s view, the quality of the stonework in the best of them places these unambiguously in the context of *moai* carving and the best image *ahu*. This is perhaps consistent with the available scientific dating, which places their first use late in the overall Rapa Nui dating sequence (c. AD1400–1500). The first use of upturned boat-shaped houses without stone curbs was perhaps earlier (Stevenson and Cristino, 1986, tabs 5 and 7). However, the superficial nature of Rapa Nui house stratigraphies, the incomplete reporting of the excavations that yielded the material used to date them and the questionable dating methods used (in particular uncalibrated obsidian hydration dating), renders this dating uncertain at best.

### THE LOC BOAT-SHAPED HOUSE SURVEY 2010–19

The LOC boat-shaped house survey examined c. 100 boat-shaped houses and the record of another eight houses made by the Heyerdahl team (Mulloy, 1961, pp. 143–44; Smith, 1961a, pp. 279–81), the *Universidad de Chile* (Vargas *et al.*, 2006, p. 213–14), and the University of Hawai‘i (UHM, 2013), the largest number looked at by any survey project on the island since that of the *Universidad de Chile* (Cristino *et al.*, 1981), detailed data from which remains largely unpublished and inaccessible. It developed out of a series of surveys conducted by LOC on *ahu* landscapes and the *Ara Moai* (*moai* roads) between 2006 and 2015 (LOC, 2009, 2013, 2014a, 2015) during which numerous *hare paenga* were encountered and recorded, and discussions with the then CONAF Rapa Nui archaeologists, Irene Arevalo and Susana Nahoe, both of whom wished to interest and involve school children in the archaeology of the island. LOC’s response to these was to design two Anglo-Spanish prompt-led recording systems, one for *hare paenga* (**Appx 3**) and one for eye petroglyphs at Rano Raraku (LOC, 2014b, fig. 1), which addressed issues related to these feature types that LOC’s surveys had shown to be of interest to it interpretatively, in ways that were accessible and, it hoped, of interest to teenage children. These latter were to be tasked with recording and thus informed about details of the archaeology on which LOC was then working, details of its immediate archaeological and wider landscape context/associations, and in the case of *hare paenga*, their geology and geological context(s). Both sheets received CONAF’s blessing and were extensively trialled by LOC, and from LOC’s perspective the data garnered using them proved interpretatively useful, but their use was never rolled-out to interested children on the island, and the survey ended with LOC’s own work.

Data prompted by the sheets (**Appxs 1, 4–8**) and used in the present analyses included:

Archaeological context—the presence or absence of a proximate *ahu*. The quality and class of the structure. Its state of preservation—was the foundation “complete”; did it have ends (with curved *pini*, ordinary *pu paenga*, or comprising stones without *pu*), or not; did it have an entrance passageway; did it have a pavement? If there was a proximate *ahu*, was the *hare paenga* orientated on it? The use of stone in it—stone type, local or imported; the

presence or absence of “special stones” such as a big “backstone” in the house’s rear wall opposite the entrance (cf. Bender *et al.*, 1997, p. 171; 2007); the presence or absence of trends in the size-distribution of the stones comprising it. The presence or absence of evidence for the reuse in it of *pu paēa*—non-fitting stones (bad fits, half *pu*, different quality finishes); entrance stones in the curb; *pu* in the threshold stone; shallow/vestigial *pu*, assumed to result from reworking a previously used *pu paēa*, etc. Was there evidence of burning, such as fire-cracking or discolouration of the stones comprising it; was there evidence for *deliberate* slighting?

Other data recorded, but not used in the present analysis, can be found in **Digital Appx 1**. These include the dimensions of individual houses, details of their doorway structures, where present, the number of *pu paēa* in them, the density of *pu*, etc. While these add to our overall knowledge of Rapa Nui boat-shaped houses, they are not greatly at odds with current understandings of them. Our measurements, for example, show the majority of surviving *hare paēa* to fall between 10 and 20m long, and between 1.4 and 2m wide, with entrance passageways—where these survive—of around 1m long and 0.5m or less wide (cf. Heyerdahl and Ferdon, 1961; Stevenson and Cristino, 1986, p. 31; Vargas *et al.*, 2006, p. 206). Likewise we know that *pu* density is variable and widely interpretable, etc. (cf. Métraux, 1971 [1940], p.195) (In LOC’s view dense *pu* are best interpreted in terms of re-use). Other data recorded by LOC on *hare paēa*, such as house “quality” and house “feel”, though they informed its analysis (e.g. p. 27), have been deemed too subjective for wider dissemination, and omitted from the record altogether. Likewise data that was compromised by adverse survey conditions.<sup>2</sup>

## Form

The superstructure of the Rapa Nui “boat-shaped” house has been likened again and again to the hull of an upturned boat, pointed at the top and tapering to the ground at both ends, with a single low entrance located in the middle of one of the long sides. Though certainly a generalisation, this characterisation is no doubt correct for many houses, but for how many? Even in the record made of them by early Western visitors, there are inconsistencies, while there is evidence in the record of the island from the late 19th- and early 20th-centuries, and on the ground recorded by LOC (**Appx 4–9**), which, in the absence of the record made by the island’s early Western visitors, would be interpreted differently.

First of all, as noted above, the majority of surviving *hare paēa* looked at by LOC do not have ends (67%) (**Figures 11–12**), while of those that do (34), less than half have both ends (11), numbers that become even more stark if *hare paēa* without worked end pieces—*pini* or *pu paēa*—are excluded (77% and 7 houses, respectively). *Pini* indeed are everywhere rare. The probably more than nine houses at Ahu Akahāa, for example, have none. Even if early houses were much longer than those which survive today, there may not be enough to go round, and yet isolated examples lie about unused in the landscape. Secondly, the long sides of at least three houses, a *hare paēa* (at Tuu Ko Ihu), a *hare nui* near the island’s northeast coast (the Hare of Aio), and one of the houses at Te Peu (probably a *hare nui*) have

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<sup>2</sup> Weather, vegetation, etc. Survey at Heki’i was inhibited by a Rapanui, in the company of one of our own local informants, who insisted that we “photograph only”.





### Figures 11–12

*Hale paepa* without ends (LBS\_033 and LBS\_100). Most *hale paepa* do not have ends (see also Figures 2 and 9). The assumption is that they formerly had ends but that the stones comprising them were later reused. Some certainly were. Other boat-shaped houses, however, never had them, while others may originally have had them, and then later been modified. LBS\_100 (below) was cleared of vegetation for CONAF. Scale 0.5m (photos: MST, Adam Stanford, Aerial Cam)

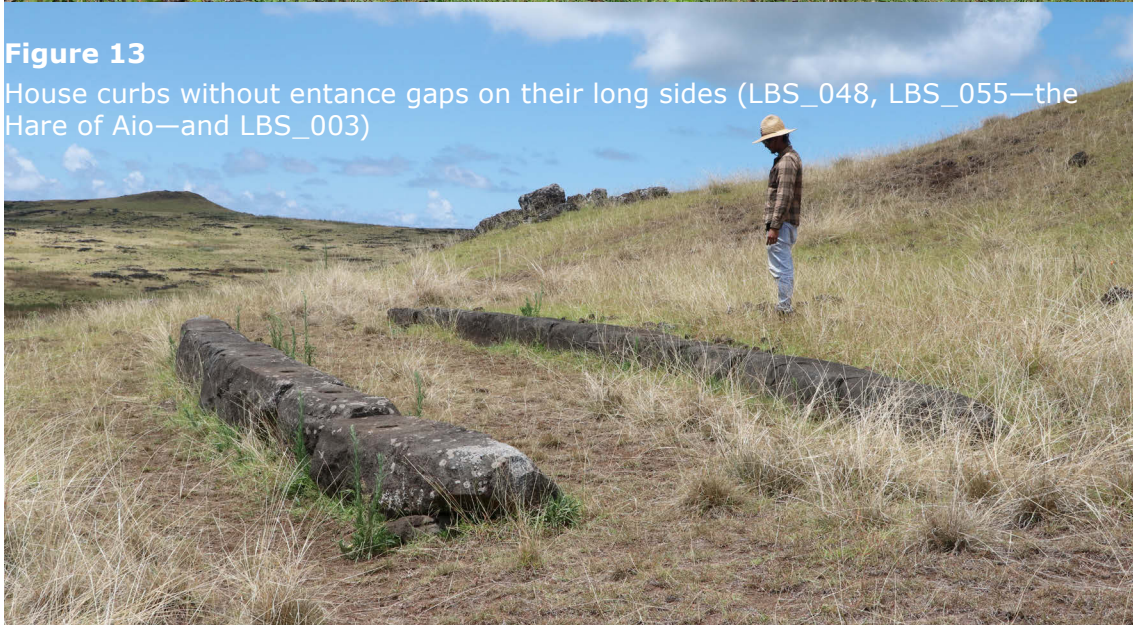






**Figure 13**

House curbs without entrance gaps on their long sides (LBS\_048, LBS\_055—the Hare of Aio—and LBS\_003)



(photos: MST, Adam Stanford, Aerial Cam)



continuous curbs with no break for an entrance (**Figure 13**). The foundation of the Hare of Aio moreover is sculpted internally, something which would have been meaningless had light been excluded from it, while the ends of its terminal *pu paenga* have pronounced in-turns, suggesting that its ends were squared, or open, rather than pointed or rounded (a feature also seen in the *hare nui* shown in **Figure 1** and a large house with no surviving entrance structure on the northeast coast) (**Figure 14**). Thirdly, rock art depicting boat-shaped houses at Omohi, on the north coast of the island, appears to show them with both rounded and square ends (**Figure 15**). Fifthly, many threshold stones contain *pu*. It is of course possible that these stones were ordinary *pu paenga* that were reused as threshold stones, indeed LOC's survey counted them as such, but it is also possible that the opposite was the case, that the entrances to *hare paenga* were moved from their sides to their ends,



**Figure 14**

*Pini* with pronounced in-turns (LBS\_055 and LBS\_044) indicative of squared ends.  
Scales 0.5m (photos: MST)

and that these threshold stones were repurposed as *pu paenga* (**Figure 16**). Fifthly, one early Western visitor to the island described Rapa Nui houses as resembling the covering of a waggon with a door *at both ends* (Cumings, 2008 [1827], p. 96). Finally, smaller boat-shaped huts without stone curbs but with superstructures similar to those described for *hare paenga* used by the Rapanui into the early 20th-century had doorways in their ends, not their sides (Hamilton *et al.* 2021, p. 61) (**Appx 2; figure A2.3**).

Collectively, these data suggest to LOC that the foregoing continuum of two or three house types should be further subdivided into those which were low and closed at their ends and those which were not, which, owing





**Figure 15**

Rock art at Omohi showing a boat-shaped house with squared ends. The panel also depicts houses of elliptical form. Scale 0.5m (*photo: MST*)



**Figure 16**

*Pu paenja* reused for a house threshold, or a house threshold repurposed as a *pu paenja* (LPS\_100). Note how the *pu* at each end straddle the adjacent curbstones. Scale 0.5m (*photo: MST*)



to differences in available light, air, space, ease of access, and so on, will have had different roles and different meanings, and should be interpreted differently.

Of course a lack of stone foundations at the ends of *hare paenga* can be explained in other ways. Principal amongst these is that these houses, or some of them, were disused, and that their stone ends, because these comprised *pini* (curved end stones) or smaller stones than those towards the centre of the house, were selectively robbed (cf. Routledge, 1919, pp. 215–16). Another possibility is that their builders simply lacked the resources to build their stone curbs to the end, and finished the houses instead by placing the sticks of their superstructures directly into the ground as was done in houses without curbs. Neither of these interpretations, however, accommodate the continuous curbs comprising the long sides of some houses, neither explain the in-turns at the end of the Hare of Aio's extant curb (and those at Te Peu and in the large house on the northeast coast), or the viability of the carving on its interior surfaces (of course LOC acknowledges that this can be explained in other ways), and neither explain the rock art showing houses with squared ends. It is reasonable to suppose, therefore, that some houses at least had squared or open ends.

### Materiality

The stones comprising *hare paenga* originate in different places, occur in different forms, were located in different positions within them. Materially, they bring together land and sea, past and present, local and foreign, deliberate and *ad hoc*, sacred and profane. They were also exclusive: certain stone types were almost never present, others were relegated to lesser houses or lesser positions in a house. Functionally, *hare paenga* were houses. The overt expression of non-functional purpose in the selection and use of stone in them, however, as well as analogy with stone use elsewhere Polynesian (e.g. Handy, 1971 [1927], 286–88; Henry, 1928, 142–43; Linton 1923: 8, 164–5; Seager Thomas, 2014), indicates that, conceptually, they were a lot more than that.

*Pu paenga* are mostly of flow lava fashioned from stone quarried in, or garnered from, the landscape. Their origins, however, and their possible meanings, are more variable. Comparison between the lavas used for them and outcrops of naturally outcropping stone, using variables such as vesicularity, phenocryst type and phenocryst size, shows that while many were or could have been derived from the immediate locality (48% of matched occurrences), others were imported, sometimes from a nearby source, sometimes from much further afield (47% of matched occurrences) (**Appx 5**). Houses at Ahu Te Peu, for example, include both local lava and two non-local lavas, one of a type found just up the coast to the east, and one best known from (if not certainly exclusive to) the other side of Maunā Terevaka (see below). Many *pu paenga*, however, did not come directly from a natural source but via a secondary one—usually another *hare paenga* or, sometimes, an *ahu*. Reuse from sources such as these is indicated by the many bad fits, reused broken stones, entrance passage stones and stones with a half *pu* at one end, etc., found in the curbs of *hare paenga* (**Appx 6; figures 16–22**), by the use of a probable *ahu* fascia block as a backstone in a house at Ahu Maitaki te Moa (**Figure 23**), by the reworking of *ahu*-sized *paenga* to a size more appropriate to *hare paenga*, and by the presence in a handful of *hare paenga* of red scoria from Puna Pau, a stone otherwise almost exclusively associated





**Figures 17–18**

Reused stones in *hare paeta* curbs. A broken *pu paeta* sandwiched between two narrower stones (LBS\_080) and a *pu paeta* with a half *pu* abutting another without one (LBS\_003). The straddling of different *pu paeta* by *pu* suggests that the latter were fashioned after the house's *paeta* were set in the ground, and the presence in a curb of *pu paeta* with single half *pu* suggests that these were reuses (or—less likely—that the adjacent stones were replacements). Scale 0.5m (photos: MST)







**Figures 19–20**

Reused stones in *hare paena* curbs. A *hare paena* passage stone (LBS\_34), a *pu paena* with a possible half *pu*, and a *pini* (LBS\_043) (photos: MST)







**Figures 21–22**

Reused *pu paenga*. Interpretatively, slightly more ambiguous, a plugged *pu* in a *pu paenga* (near and perhaps extracted from LBS\_016), and a cluster of vestigial *pu* (LBS\_019). Vestigial *pu* have no obvious functional role, being insufficiently deep to retain anything, and are here interpreted here as relics of functional *pu* on previously used *pu paenga* that have been reworked. It is LOC's view that very densely spaced *pu* (**Appx 6**, column 6; **Figure A9.39**) are also indicative of reuse. Scales 0.1m (photos: MST)







**Figure 23**

Probable *ahu* fascia stone reused as a *hare paena* backstone (LBS\_022). Scale 0.5m (photo: MST)

with *ahu* and (later) burials in *ahu* (Seager Thomas, 2014; Seelenfreund & Holdaway, 2000) (**Figure 38**). *Pu paena* themselves were also widely reused in *ahu* and other stone feature types (**Figure 36**).

These observations establish a direct material link between *hare paena* and both the island's ceremonial-religious architecture and those who lived in or used the houses and *ahu* from which the reused stones were garnered (the "ancestors").

Also of interest interpretatively is the patterning of *pu paena* in *hare paena* (**Appx 5**). Many display a clear trend in their size distribution. It is not uncommon for houses to have especially big stones (or other "special" stones) opposite the central doorway (LOC counted 34 houses—34%—where a stone approximately in the middle of the house back was the largest in it (**Figure 16**; **figure 24**), and a number of others where there is a suggestively large gap in this location), while the size of *pu paena* in most houses (61%) gets larger towards their centres (Smith, 1961b, fig. 77; Cristino *et al.* 1986, unnumbered fig. 5) (**Figure 10**). This applies irrespective of whether the stones comprising the house are well-fitted and therefore perhaps original to it, or reused. Stones of different types are also located in different positions in the house, or rejected altogether. Locally garnered red scoria (22% of matched occurrences), for example, indeed red scoria generally, *tends* to be associated with poor quality houses, or located towards the ends of houses or in their pavements only (63%) (Seager Thomas, 2014, p. 103, tab. S3) (**Figure 25**; **figure A9.59**; **figure A9.67**), while Rano Raraku tuff, the stone used for most *moai*, was identified in three houses only,<sup>3</sup> one of which included a 6m run of *paena* without *pu* at one end and was perhaps therefore never completed.<sup>4</sup>





**Figure 24**

Large backstone opposite a *hare paenga* entrance passage (LBS\_028). Scale 0.5m  
(photo: MST)



**Figure 25**

Local red scoria used in peripheral positions in *hare paenga* curbs (LBS\_071 and LBS\_078) (photos: Lawrence Shaw, Colin Richards)



Finally, the juxtaposition in the *hare paēa* of *poro* (ultimately if not necessarily directly from the sea shore) in its pavement, and its dressed stone curb, and its upturned boat-shaped superstructure, provides a structural parallel for *ahu*, which shared the same juxtaposition, and/or a beached canoe, which the juxtaposition resembled (cf. Hamilton, 2010, pp. 72–73; Philippi, 1873, p. 23). Whether or not the parallels were intended or recognised by the Rapanui is of course another matter but the allusions are there nonetheless (Hamilton *et al.*, 2011, p. 180).

### Stone types used in *hare paēa*

Most stone types that could be used in *hare paēa* were, but their builders showed a marked preference for both local and non-local flow lavas, while eschewing three stone types—red scoria from Puna Pau (7% of matched occurrences), trachyte from Poike (a single *pu paēa*)<sup>5</sup> and tuff from Rano Raraku (3% of matched occurrences)—almost altogether. Lavas, vesicular and non-vesicular and phenocrystalline and non-phenocrystalline, paralleled in rock outcrops in the immediate vicinity or nearby, were widely used, but as we have seen, so too were apparently non-local variants of the same stones, in particular a coarsely phenocrystalline lava, similar in appearance to lavas atop and in flows on the north, northeast and south flanks of Maunga Terevaka (LOC’s “Terevaka-type”) (Métraux refers to a source at Rano Aroi where there is in fact evidence for *paēa* working—Métraux, 1971 [1940], p. 194; Hamilton *et al.*, 2011, 184) (**Figure 26; figure 28**), and a finer, non-vesicular phenocrystalline lava similar in appearance to lavas in flows on the northwest of Maunga Terevaka (LOC’s NW coast-type). Less common but also widespread was the use of red scorias paralleled in rock outcrops in the immediate vicinity or nearby (**Figure 25**).

Visual matches of these sorts are of course problematical. It is difficult to match differently weathered stones. LOC’s knowledge of the stone of the island moreover extends only to those areas it has surveyed, and it is possible that matches for the stones that it distinguished occur in locations with which it is not familiar. Thus its “Terevaka-type”, or some individual occurrences of its “Terevaka-type”, might not be from Maunga Terevaka or the NE coast of the island at all. To be sure one way or another, a wider but also *deeper* (chemical or petrological) knowledge of the island’s stone would be necessary. That said, it is often possible to say with confidence that a particular stone type, such as “Terevaka-type”, *does not* occur naturally on or near a site, and if present must have been imported (**Appx 5; digital appx 1**).

Based on the geological data garnered by present survey, it is LOC’s current view that significant proportion of *hare paēa* incorporate non-local stone, and, assuming that our identification of “Terevaka-type” is correct, that this was transported a considerable distance from its source to its final point of use. We do not of course *know* to what extent this transport was “down-the-line” (through reuse over time) or direct, but we must acknowledge the possibility that at some point during Rapa Nui Prehistory, most likely during the *ahu-moai* period when *moai* in Rano Raraku tuff and *pukao* in Puna Pau red scoria were being transported around the island,

<sup>3</sup> LBS\_082 (**Figure A9.62**), LBS\_098 and LBS\_099 (**Figure A9.74**)

<sup>4</sup> LBS\_098

<sup>5</sup> Adjacent to LBS\_114

so too were many of the stone types and stones utilised in the curbs of *hare paēŋa*.



**Figure 26**

*Paēŋa* in LOC's "Terevaka-type" flow lava. Scale 0.1m (photo: MST)

### **Fashioning *pu paēŋa***

In cutting, shaping and finishing large stone objects, including *taheta*, *moai* and *paēŋa*, and almost certainly *pu paēŋa*, the Rapanui used two and possibly three techniques: splitting, flaking and pounding.<sup>6</sup> The evidence for this lies in the many heavily battered *poro* and *toki* found on the island, often clustered in the vicinity of extraction sites, traces of pounding and flaking such as pits and sub-conchoidal flake scars on objects that were abandoned or left unfinished (e.g. LOC, 2020, fig. 8) (**Figures 27–28**), stone flake and other debitage (LOC, 2016, DA1: LPS65 and LPS69; McCoy, 2014, pp. 10–12), and a number of isolated *paēŋa*, apparently from nearby *ahu*, into which linear grooves have been pounded, sometimes on opposing sides, during cutting or prior to splitting, and a single *paēŋa* of *pu paēŋa* size demonstrably cut in this way (cf. Vogt and Cauwe, 1919, figs 4, 8 and 17) (**Figures 29–30**).<sup>7</sup> Splitting using wedges, and drilling and sawing as postulated by Heyerdahl (1961,

<sup>6</sup> Shaping and finishing *paēŋa* by pounding was possible because of the nature of the rocks used for most of these. Vesicular lavas and those containing abundant large and relatively soft phenocrysts are easily worked by pounding, the pounder crushing the rock's hard basaltic matrix in into vesicle or the softer phenocryst. The stone types used on the island for building and carving were never the same as those used for tools.

<sup>7</sup> On analogy with standing stones elsewhere in Polynesia, Professor Vogt and Dr Cauwe (2019) interpret these stones as recumbent standing stones. LOC acknowledges the ingeniousness of their argumentation.





**Figures 27–28**

*Pu paenja* at Ahu Mahatua with conspicuous pick marks. *Paenja* quarrying in a scree at Rano Aroi on Maunā Terevaka. Similar pick marks can be seen. Scales 0.1m (photos: MST)







**Figures 29–30**

*Paenga* cutting in front of Ahu Maitaki te Moa and near Ahu Akahanga. It is assumed that these and similar partially reworked *paenga* in the vicinity of *ahu* were *ahu paenga* that were in the process of being repurposed as house curbstones before work on them was abandoned. Scales 0.5m and 0.1m (photos: MST)





p. 449), all of which are attested in the wider ethnographic record, cannot currently be demonstrated for Rapa Nui (see p. 36), but there is evidence that pre-existing joints were opened or held open by inserting stones into them, which with time perhaps worked into them (S. Haoa pers. comm.; McCoy, 2014, fig. 6).

It is clear both from in situ curbs and displaced *pu paenga*, the lower parts of which are often broader than the upper and sometimes only roughly worked, that many *pu paenga* were finished to ground level or a little above only. LOC assumes that this took place after these had been set in the ground as this would have been both easier and more efficient. Likewise, new *pu* were fashioned after the *paenga* comprising the curb had been set in the ground, the evidence for this being the existence of *pu*, which straddle different *pu paenga*, and a few well-dressed but presumably unfinished *hare paenga* or *hare nui* curbs, which were never supplied with *pu*.<sup>8</sup>

Many *pu paenga* of course did not come directly from a quarry or an *ahu*, they came from another *hare paenga*. Most of these were reused unaltered—stones of different size abut one another; broken ends abut dressed ends; well-finished stones abut poorly finished stones; stones with half a *pu* at the end abut stones with no *pu* at the end (see above). There is evidence, however, that some were re-worked. Principal here is the presence of “vestigial” *pu*, superstructure retaining holes that are too shallow to have retained anything (**Figure 22**). Many, many *pu paenga* and *hare paenga* have these (**Appx 6**). There is also at least one *pu paenga* in which a *pu* has been carefully plugged (**Figure 23**). Only in a handful of cases is it possible to infer whether this re-working related to the house in which it occurs, or a previous house, so it has not usually been included in LOC’s counts of reuses. For our understanding of *hare paenga*, its implications are two-fold. Firstly, the houses from which these stones were garnered might have been bigger or comprised bigger stones than the houses in which they were reused, and secondly, the individual stones might represent repeated episodes of labour.

## Villages

Why, when the dating evidence suggests that *hare paenga* were current for several hundred years; why, when the majority of *hare paenga* are ruinous, and the bigger groups of them (Ahu Akahanga, Ahu Te Peu, Ahu Vai Mata) include a minority of complete foundations only, and at other major *ahu*, there is no evidence that there were ever more than two or three (Ahu One Makihi, Ahu Te Nui); why, when the re-use of *pu paenga* is in evidence everywhere; and why, when La Pérouse describes a settlement comprising three or four houses only (La Pérouse, 1792, p. 89) and his second in command M. de Langle, a house at on the south coast surrounded by several *foundations* (de Langle, 1792, p. 99), do scholars persist in describing extant clusters of *hare paenga* foundations as villages? As far as LOC is concerned, for no good reason at all. It is not possible of course to *prove* that these clusters were not “villages”. The weight of evidence on the ground and in the ethno-historical record, however, is that they were not, and that they were should not therefore be our default interpretation.

Take Ahu Vai Mata on the northeast coast of the island, where there is *no* proximate evidence for Colonial/ Company-period re-use, surveyed by

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<sup>8</sup> LBS\_074 (**Figure A9.57**) and LBS\_098

LOC and a team from the University of Hawai'i (UHM, 2003). Here there are the remains of 11 or 12 *hare paēna*. Of these, three or four only are more or less whole—assuming *hare paēna* did not always have ends (see above).<sup>9</sup> In two houses, the *pu paēna* comprising them lie buried on their sides as though the houses have been deliberately slighted<sup>10</sup> (a feature exactly paralleled in *hare paēna* at Tu Ko Ihu and Ahu Oroī).<sup>11</sup> Of the remaining houses, four lack both ends (**Figure 11**);<sup>12</sup> one, one end;<sup>13</sup> four, entrance structures;<sup>14</sup> and four, stretches of their front and/or back curbs.<sup>15</sup> In the three near complete *hare paēna* on site recorded by LOC, a minimum of six, seven and 15 *pu paēna* respectively were reused.<sup>16</sup> Reused *pu paēna* are also present in five other feature types on site, a probable ceremonial-religious platform at right angles to the *ahu*, a modified cave adjacent to one of the complete *hare paēna* foundations, a curb around an inhumation burial, a surface feature of uncertain purpose (identified by the University of Hawai'i team as another house), and at least five *umu* (**Figure 36**). These *pu paēna* must have come from somewhere and the most immediate source and perhaps the most likely source is the disused *hare paēna* on site.

Such small numbers of whole or near whole *hare paēna* even at major *ahu* are typical. Nearby Ahu Maitaki te Moa has two (one without ends and one, one end of which is buried);<sup>17</sup> Ahu Papa Tekena has one, adjacent to two well-preserved but nonetheless more fragmentary houses;<sup>18</sup> Tuu Ko Ihu, where a house appears to have been deliberately slighted, has one.<sup>19</sup> Ahu Te Peu, where there are distinguishable remains of 10 or 11 houses, has between three and four, if, once again, it is allowed that some house foundations did not have ends.<sup>20</sup>

Because we know that the destruction of *hare paēna* and the re-use of *pu paēna* did not end with Prehistory, but continued into the Colonial/ Company-period, we cannot assert that everything we see on the ground today necessarily reflects settlement during Prehistory. Indeed, there is unambiguous evidence for Colonial/Company-period reuse. But this reuse, rather than challenging LOC's thesis, provides further evidence in support of it, in that the survivals referred to above occur mostly in areas of the north coast where there is little evidence for Colonial/ Company-period building (Porteous, 1981, fig.

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<sup>9</sup> LBS\_024, LBS\_028, LBS\_031 and LBS\_033. Today the curb of LBS\_028 is complete. A plan of it made in the 1980s by the *Universidad de Chile* team, however, shows it to be missing one end and to have a more extensive pavement (Cristino, 1986, unnumbered fig. 5). It is not clear whether this difference results from an unrecorded reconstruction or a mistake by the *Universidad de Chile* team.

<sup>10</sup> LBS\_026 (**Figure A9.25**) and LBS\_029 (**Figure A9.27**)

<sup>11</sup> LBS\_046 (**Figure 34**) and LBS\_084 (**Figure A9.65**)

<sup>12</sup> LBS\_023, LBS\_025, LBS\_027 and LBS\_030

<sup>13</sup> LBS\_032

<sup>14</sup> LBS\_023, LBS\_027, LBS\_030 and LBS\_032

<sup>15</sup> LBS\_023, LBS\_025, LBS\_030 and LBS\_032

<sup>16</sup> LBS\_024, LBS\_028 and LBS\_033

<sup>17</sup> LBS\_021 and LBS\_022

<sup>18</sup> LBS\_040 and LBS\_041 and LBS\_042

<sup>19</sup> LBS\_048

<sup>20</sup> LBS\_002, LBS\_008, LBS\_009 and LBS\_10. Only nine out of 10 readily identifiable houses were recorded by LOC. Photos show the other to be missing several *pu paēna* and to have no entrance passageway (**Figure A9.11**).

1.7), while at *ahu* in areas where Colonial/ Company-period building was extensive, such as around Hāga O'Teo, Hāga Poukura, Hāga Roa and Vaihu, there are hardly any surviving *hare paenga* at all, suggesting that the surviving distributions elsewhere are in fact prehistoric.

## Role

One aspect of the evidence in favour of a ritual or non-functional role for *hare paenga* associated with *ahu* is the supposed orientation of their entrances, and—by implication—their long sides, on these *ahu*. In fact, of those associated with *ahu* surveyed (91), more than half (57%) are not orientated on a proximate *ahu* (though a handful perhaps point at some more distant, invisible *ahu*), while of those that are (39), more than half (19) are orientated on the wing or the very end of the structure, rather than its main platform (**Appx 7; figure 31**). This aspect of the ritual argument appears therefore to be false.

Another aspect of the evidence in favour of a ritual or non-functional role for *hare paenga* associated with *ahu* is that this is where the best quality examples were located. Up to a point this *is* true. The majority of *hare paenga*, including most of those assessed by LOC as of medium or high quality, are at *ahu*, while those recorded by LOC not at *ahu* (19) do include a higher proportion assessed by it as of poor quality. However, it also includes a handful of buildings of higher quality, not least the Hare of Aio, which although not now demonstrably of the highest quality, is of megalithic construction and the only known boat-shaped house decorated with petroglyphs and these in labour-intensive relief (Lee and Horley, 2018, pp. 332–33).<sup>21</sup>

LOC's assessment of what orientations are or were potent or of high status is of course subjective and may not coincide with those of the prehistoric Rapanui. It may not, for example, have been the *ahu* that was important to them, but the plaza or courtyard in front of it (the majority of orientations, whether towards an *ahu* or not, are across the plaza—63%) (**Appx 7**). It is possible too that some orientations, this piece of sea or that hill, or away from this piece of land or that hill, trumped others. (Six *hare paenga* point at distinct landscape features). Likewise our assessment of "quality" is subjective. A labour-intensive structure will always have had meaning, but a house comprising many conflict trophies or stones from many or important "ancestor houses", might have been more potent to the Rapanui and therefore of higher status to them. It is also possible that the meaning of these things changed over time.

Whatever the reality, it is clear that current assumptions are wanting. *Hare paenga* at *ahu* were not all orientated on *ahu*, and *hare paenga* in the wider landscape were not all of inferior quality to those at *ahu* (at least from a contemporary Western perspective), and it is wrong therefore to infer, on these grounds, that *hare paenga* had a ritual or non-functional role. *Hare paenga* with entrances at their ends, being lighter and better ventilated, and having more headroom than houses of the traditionally accepted form, *could* have had a different role to these. *Hare paenga* in different locations with different perspectives *could* have had different roles. Most likely the primary role of most boat-shaped houses seen by early Western visitors was what the *majority* of these observers said it was, and the reported lack of artefactual

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<sup>21</sup> LPS\_055. Other "inland" sites assessed by LOC as of above average quality include LBS\_012 (**Figure A9.15**), inland of Ahu Te Nui, and LBS\_088 (**Figure A9.69**) and LBS\_089, up the Ara Moai south from Ahu Hāga Tetera.





**Figure 31**

*Hare paenga doorway orientations: on the ahu (LBS\_042), on the end of the ahu (LBS\_008), and away from the ahu (LBS\_072) (photos: MST, Adam Stanford, Aerial Cam)*





finds made in them supports (Hunt and Lipo, 2011, pp. 25–26)—they were communal dormitories. But that does not mean that they, or others, did not also have other roles and a significance that transcended these.

### **Either destruction or abandonment**

The deliberate destruction of *hare paenga*, along with the proliferation of *mataa* and the toppling of *moai*, is integral to the Easter Island internecine war hypothesis (e.g. Englert, 1970, p. 142; Bahn, 2015, p. 143; Routledge, 1919, p. 216). But were *hare paenga* deliberately destroyed, and if so, what was the mechanism? Were they destroyed during conflict? Eugène Eyraud, the first missionary on the island, described this happening to his tormentor's house (Eyraud, 2004 [1864], pp. 31–32). Were they demolished as no longer useful? Geiseler stated this to have been the case (Geiseler, 1995 [1883], p. 76). Were they accidentally destroyed? Or were they deliberately destroyed—or dismantled—for ritual or practical reasons, as suggested by the evidence for widespread stone reuse outline above?

Apart from the ethno-historical record, the evidence for *hare paenga* destruction takes four forms (**Appx 8**). Demonstrably in situ fire-cracking and discolouration of the stones comprising the house curb and entrance passage (35% of houses) (the rapid, wind-fanned conflagration described by Eyraud is exactly what would be required to crack otherwise fire-resistant basaltic rocks favoured by the Rapanui for *pu paenga*) (**Figure 32–33**); the removal *off site* of *pu paenga* and *poro*; the displacement *on site* of *pu paenga* and *poro* (17%) (**Figure 34–35**); and the reuse of *pu paenga* in other prehistoric and Colonial/Company-period structures (**Figure 36–37**).

This evidence—like so much “evidence”—can be interpreted in a variety of ways.

The evidence for burning is just that: evidence for burning. We can assert with some confidence, however, that it is the burning of the houses' superstructures, and not just that of later vegetation, as this latter would not normally be sufficiently violent to crack fire-resistant basaltic rock. We know that houses *were* burnt down during conflict, but very likely they were also burnt down accidentally, and it is also possible that they were burnt down for functional or non-functional reasons that we can no longer identify, such as purification (cf. Apple, 1971, p. 32; Handy, 1971[1927], pp. 51–52, 285–86).

The transport of one particularly large *pu paenga* from the north to the south of the island was traditionally attributed to conflict (Routledge, 1919, p. 216),<sup>22</sup> and it is certain that other stones are well out of their natural geological contexts (**Figure 37**). But we know, too, that stones of other types, used for other things (*moai*, *pukao*, tools), but also building material, were widely and routinely transported around the island. There are also plausible, and, given the scale and context(s), perhaps more plausible, alternative interpretations for the movement off site and reuse of *pu paenga*.

Probably the best evidence for conflict from *hare paenga* is the displacement *on site* of the stones comprising them, in particular, when this is associated with evidence of burning or other damage. The overturned *pu paenga* in the “slighted” houses referred to above, for example, one (Tuu Ko Ihu) accompanied by the

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<sup>22</sup> Possible candidates for this stone include a large *pu paenga* in house LBS\_102 at Tonjariki (**Figure A9.77**) and another in front of Ahu Tuu Tahī, characterised by its very shallow (vestigial) *pu*.





**Figures 32–33**

Evidence of burning. The reddened central part of a *hare paenga* curb (LBS\_040) and a badly fire cracked *pu paenga* (LBS\_015). Note how the curb and the near entrance passage stone of LBS\_040 are reddened but not the stones roundabout. This shows unambiguously that it was the house that was burned and not the hillside on which it is located. Scales 0.5m and 0.1m (photos: MST)







### Figures 34–35

Slighted houses at Tuu Ko Ihu (LBS\_046) and Ahu Akahana (LBS\_078). In the Tuu Ko Ihu house, *pu paena* have been displaced both into and out of the house, and every one of them has been broken. In the Ahu Akahana house, extracted *pu paena* lie all about. The impression given is of *deliberate* destruction rather than abandonment and reuse (photos: Adam Stanford, Aerial Cam, MST)









breaking of stones, and one (Ahu Oroï) the reddening of stone and probable fire-cracking, are certainly suggestive of deliberate destruction. Likewise the remains of houses, some also burned, from which *pu paenga* appear to have been extracted and then, instead of being reused, left on site (Ahu Akahanga, Ahu Heki'i, Ahu Te Peu, Ahu Vai Mata and Ahu Vinapu) (**Figure 26**).<sup>23</sup> The question with these, is not were they deliberately destroyed, there is good evidence that they were, but why? Conflict is one answer, but, given what we know about conflict in Polynesia, very likely an incomplete one. Other answers include material sacrifice, interrupted demolition (other activities on the island are supposed by some to have been interrupted), iconoclasm, etc.

This brings us to the question of why houses, which had gone out of use, or which had been destroyed during conflict, were *not* reused, and became instead a source of building material for other *hare paenga*. The best that LOC can do in this case is offer a guess, albeit one consistent with its knowledge of stone use on the island and scholarship's wider understanding of Polynesian practice, and that is that while the Rapanui's interaction with stone was everyday and practical, it was also hedged around with beliefs and rituals, which determined for him or her what was, and what was not possible. Very likely stones and houses that were not reused, *could not* be reused. Another possibility is that houses were not reused because there was nobody to reuse them. This alternative view is consistent with ideas of "collapse" on the island (e.g. Diamond, 2004), but were it the case, the survival of many more complete foundations would perhaps be expected.

Finally we need to consider destruction of *hare paenga* through the reuse of the stones comprising them during the Colonial/ Company-period. For the most part, this is unambiguous, although it is sometimes misinterpreted. Referred to above is a general correspondence between the survival and disappearance of prehistoric houses and the intensity of Colonial/ Company-period building. More specifically, however, this reuse is evidenced by both recorded and extant examples. The Company manager's house in Mataverí, for example, was built on the uprooted curb stones of what is said to have been a "cannibal habitation" (Routledge, 1919, pp. 134, 265), from the size of the reused stones certainly a *hare nui*; Hanga Roa's old church had *pu paenga* for its front steps; LOC has recorded them in and associated with Company-period walls (*pircas*) along the *Ara Moai* and near Ahu Te a Kava and Ahu Tonjariki, and in a water cistern (*puna*) at Hanga O'Teo, where none of the many identifiable houses present survive intact (see also Métraux, 1971 [1940], pp. 129, 196; Porteous, 1981, p. 146; Vargas *et al.*, 2006, p. 213) (**Figure 37**).

### Meaning or meanings

So what was a *hare paenga*? The objective reader of course will make up his or her own mind on the basis of the available evidence—to which LOC has contributed here. LOC's own view is that the *hare paenga* was many things, and that these changed with time. Of its earliest manifestation we have no view, except that it evolved out of a need for shelter, a pre-existing model of "house", and the available resources. Guesses that they mimic the cabin of a Tuamotu canoe (Ferdon, 1979), an upturned canoe (Philippi, 1873, p.

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<sup>23</sup> Of course some stones might have been extracted to facilitate the removal of others, or, having been extracted, found wanting.





**Figure 37**

Company-period puna (water cistern) at Hana O'Teo, in part fashioned from *pu paenga* (photo: MST)

23), or are a product of the materials available on the island (Métreaux, 1971 [1940], p. 202), are as good as any, but they are nonetheless guesses. But these houses do not survive or have not yet been recognised. Later, probably during the *ahu-moai* period, evolving understandings and techniques of stone and stone-working alighted on the idea of the curb, and it is during this period that the best houses (from a Western perspective) were built and from which the best dressed and best fitting *pu paenga* derive. We assume that the rituals and taboos attributed to *moai* carving and *ahu* construction applied equally to *hare paenga*, a view supported by analogy with Polynesian practice elsewhere but also surviving local traditions that suggest that stone generally and other parts of houses had some kind of enhanced meaning (e.g. Métreaux, 1971 [1940], p. 197). That is to say, a house was not *just* a house. The re-working of stones no doubt also belongs to this period—i.e. the reuse of *pu paenga* (and the possible meanings associated with this) dates to this early period in the history of the *hare paenga*. Finally there was a “decadent” period (from a Western perspective) of house construction and repair, characterised by widespread reuse of unmodified *pu paenga*, to which most surviving *hare paenga* belong, and—possibly—the movement of the entrances of some from the side to the ends. By this time the skills required for stone-working had either been lost, or, perhaps, the surplus/leisure required for it no longer existed, and new or repaired houses depended primarily on scavenging. Meaning, however, was not necessarily forgotten. Individual reused stones perhaps continued to have meaning as trophies or ancestor stones. A functionalist will certainly disagree, but it is LOC's view that house building and use continued to be conditioned by a long-established set of Polynesian practices and beliefs and that even the most debased of *hare paenga*, indeed of boat-shaped



houses generally, though still houses, continued to have non-functional significance, just as did every manifestation of stone use and working on the island.

### Uninterpreted features of *hare paena*

*Hare paena* surveyed by LOC display a number of additional features, which currently remain uninterpreted (**Appx 4**). Most common is what LOC has described as the “non-functional” end—a continuation of the *hare paena* curb comprising mostly rough, unmodified stones, but also occasionally *paena* without visible *pu* (**Figure 38**). Sometimes this completes an ellipse; sometimes it just extends the curb for a few metres before stopping. Possibly



**Figure 38**

“Non-functional end” (LBS\_019). A continuation of a *hare paena* curb comprising stones without *pu*. The red scoria is from Maunā Puna Pau, the pukao quarry. Scale 0.1m (photo: MST)

these helped anchor the sticks of the house’s superstructure in the absence of a *pu paena* curb, but no actual evidence currently supports such an interpretation. It would also leave the previously mentioned *hare paena* at Tuu Ko Ihu, which is without an entrance on its long side, and has “non-functional” stonework at both ends, without an entrance at all.

Also currently without interpretation is paving in the ends of a small number of houses (**Figures 39–40**). Given the possibility that some boat-shaped houses were open or entered from the end, an obvious explanation for this is that it was entrance paving, analogous to that seen in entrance passages in the sides of houses, but this is not wholly satisfactory given that in at least one instance, this paving is in a house with an extant, *pini* end (**Figure 39**). Of course there are other possibilities. It could have provided



a dry or drier place for storage, or for some privileged person to sleep on, but these interpretations are not easy to square with the historical record, which indicates that *hare paenga* were not used for storage and were not elite dwellings. LOC's favoured interpretation, suggested by an inhumation burial that was surrounded by a *pu paenga* curb and paved with *poro* (**Figure 36**), is that these paved houses too are burials.<sup>24</sup> The fact is, however, that these interpretations are little more than guesses.

Finally, different *hare paenga* display morphological/constructional idiosyncrasies, which may have an as yet unrecognised meaning—perhaps cultural, perhaps chronological, perhaps aesthetic, perhaps practical. Examples include “pillars”, comprising an upright *poro* or *paenga*, positioned at the outer end of one or both of the house's passage stones (**Figures 8–9**); *pu* with a shallow circular margin around them (a feature paralleled in some *taheta*) (LOC, 2020, fig. 11.3) (**Figure 41**); and passage stones, the ends of which are set inside the house curb rather than outside of it, or *vice versa* (**Figures 7–8**). It is LOC's view the shallow circular margin around some *pu* may be a by-product of drilling, but this too is just a guess. As for the “pillars” and different passage stone settings, we cannot even guess at their purpose or meaning.

## CONCLUSION

LOC has surveyed c. 100 boat-shaped houses, probably more than any project since that of the *Universidad de Chile* (1981), and many more than the record of them made available by any project. The data collected is consistent with many aspects of the received orthodoxy regarding *hare paenga*, and inconsistent with others, confirming, qualifying and adding in useful ways to the existing record and the perceptions and interpretations based on these. Most original perhaps, and therefore most important, are its observations on *hare paenga* form, the true nature of so-called *hare paenga* “villages”, and *hare paenga* role/ meaning. It does not think *hare paenga* were all elliptical; it does not think they formed large villages; it does think, however, that their construction and use was steeped in superstition. Many of these perceptions, as noted above, are consistent with our wider understanding of prehistoric Rapa Nui and wider Polynesian stone use.

But there are other aspects of the nature of *hare paenga* about which LOC remains uncertain or ignorant, because they are unknowable or because the questions LOC asked of them were not up to elucidating these.

It is not LOC's intention to revisit these in the field. Bar the writing-up and publication of its final reports, the UCL Rapa Nui Landscapes of Construction Project *per se* is finished. But it can make some suggestions of possible use to future researchers. Firstly, it would be useful to excavate or conduct geophysical survey on some houses without curbs in order to establish what proportion of these originally had them. Likewise it would be useful to excavate a few more *hare paenga* proper, including their pavements (an obvious finds-trap), the area between the house and proximate *umu*, and any likely rubbish dumps. Of interest here is whether they had ends or not, what artefactual

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<sup>24</sup> Of possible note in this context is the association of paved ends with Puna Pau red scoria, which is frequently associated with inhumation burials, and Rano Raraku tuff, both of which are otherwise rare in *hare paenga*.





**Figures 39–40**

Paved house ends. Inside a curb comprising *pu paenja* and *pini* (LBS\_033), and inside a curb extension comprising stones without *pu* (LBS\_087). Scale 0.5m (photos: MST)







**Figure 40**

Large *pu* with a shallow circular margin around it (LBS\_055). These are uncommon features but they were spotted—but mostly not recorded—in other houses. Scale 0.1m (photo: MST)

or sedimentological evidence there is for contemporary activity, and how old they are. Owing to their superficial nature, such excavations might yield no useful data at all but the possibility of it should at least be explored, and the results—useful or not—*published* (many *hare paenga* have been excavated in the past, not least by the *Universidad de Chile*, but few of these excavations have been published). It would also like to see more and better work on stone provenance. LOC's visual identifications of utilised stone types which do not occur naturally on the sites on which they occur *could* be further explored both in the field and scientifically.<sup>25</sup> Are LOC's individual "types" from a multitude of, from just a handful of, or from a single source? So far LOC has not been able to establish which of these is the case. There are also gaps in LOC's record that need to be filled in (**Digital Appx 1**). In particular more and better data on parts of *hare paenga* curbs without *pu* are needed.

Finally, LOC would like to see more work on the contextual and sensory dimensions of these houses. How did perceptions in the house, at the entrance, on the pavement differ? Were pavements comprising large stones placed directly on the land-surface practical working areas? In many cases LOC was not convinced that they are. To what extent do *hare paenga* with different characteristics correspond to the Rapa Nui concepts of *tai* (the coastal zone) and *uta* (inland)? What else in the landscape other than *ahu*, the *ahu* plaza,

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<sup>25</sup> In such cases, the knowledge gained must be measured against the integrity of the material culture lost. LOC itself would not favour the destructive analysis of *pu paenga* in this case.



and prominent hills and seascapes might *hare paenga* have been orientated on? What were their ends orientated on? What are their aural and olfactory relationship to *ahu*. LOC suggests (but has not itself tested) that the majority of *hare paenga* were outside the range of smells emanating from *ahu*—such as those of the dead and cremation; while from many, activities taking place at *ahu* might have been audible and were certainly visible (cf. Hamilton and Whitehouse, 2000). To what extent is quality associated with other feature relationships? Were there any trends of reuse of *pu paenga* in features other than *hare paenga*, *ahu*, *umu*, and so on? It has been suggested, for example, that square *umu*, often fashioned from reused *pu paenga* are associated with particular groups or parts of the island. Is this true? Once again such work might produce no useful data, but it might, and it should therefore be tried.

*Hare paenga* were a recurrent feature of the island's prehistoric landscape and at their best they mark a high-point in the island's architectural culture. Whether ultimately deemed sacred or profane, for our understanding of Rapa Nui during Prehistory, they are therefore no less important than *ahu*, *moai*, water procurement, rock gardens, *Rongo-Rongo*, or any of the other features of Rapa Nui life and culture that have exercised scholars over the years, and they should receive the same degree of survey and interpretative attention as these. It is not good enough to repeat the same orthodoxy over and over again. They are not necessarily the houses of the élite, they do not *necessarily* form villages, and, owing to uncertainties surrounding their disuse and abandonment, it is not possible even to *guesstimate* population from them. What they are is an integral part of an evolved stone using culture related to wider Polynesian cultures but nonetheless unique in the region. Just as understanding *ahu* and *moai* is central to understanding *hare paenga*, so understanding *hare paenga* central to understanding *ahu* and *moai* and, indeed, every other stone feature on the island. The present report, for *hare paenga*, makes a start towards those ends.

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**Appendix 1: boat-shaped houses included in the survey**

| LOC survey no | Other LOC survey nos | Area | Proximate <i>ahulahu</i> complex | Other associations                 | Easting | Northing | Additional data   |
|---------------|----------------------|------|----------------------------------|------------------------------------|---------|----------|-------------------|
| LBS_001       |                      | NW   | Tahai                            |                                    | 655919  | 6997041  |                   |
| LBS_002       |                      | NW   | Te Peu                           |                                    | 657505  | 7001402  |                   |
| LBS_003       |                      | NW   | Te Peu                           |                                    | 657524  | 7001346  |                   |
| LBS_004       |                      | NW   | Te Peu                           |                                    | 657534  | 7001302  |                   |
| LBS_005       |                      | NW   | Te Peu                           |                                    | 657552  | 7001328  |                   |
| LBS_006       |                      | NW   | Te Peu                           |                                    | 657559  | 7001304  |                   |
| LBS_007       |                      | NW   | Te Peu                           |                                    | 657602  | 7001361  |                   |
| LBS_008       |                      | NW   | Te Peu                           |                                    | 657605  | 7001384  |                   |
| LBS_009       |                      | NW   | Te Peu                           |                                    | 657608  | 7001403  |                   |
| LBS_010       |                      | NW   | Te Peu                           |                                    | 657665  | 7001548  |                   |
| LBS_011       |                      | NW   | Te Nui                           |                                    | 658017  | 7002786  |                   |
| LBS_012       |                      | NW   | Te Nui                           |                                    | 658132  | 7002562  |                   |
| LBS_013       |                      | NW   | no                               | valley adjacent to Maitaki te Moa  | 658377  | 7003766  |                   |
| LBS_014       |                      | NW   | Vai Teka                         |                                    | 658405  | 6999943  |                   |
| LBS_015       |                      | NW   | Vai Teka                         |                                    | 658410  | 6999925  |                   |
| LBS_016       |                      | NW   | Vai Teka                         |                                    | 658414  | 6999903  |                   |
| LBS_017       |                      | NW   | Vai Teka                         |                                    | 658435  | 6999873  |                   |
| LBS_018       |                      | NW   | Vai Teka                         |                                    | 658460  | 6999864  |                   |
| LBS_019       |                      | NW   | no                               |                                    | 658461  | 7003550  |                   |
| LBS_020       |                      | NW   | no                               | upslope of Ahu Te Nui              | 658611  | 7003528  |                   |
| LBS_021       |                      | NW   | Maitaki te Moa                   |                                    | 658743  | 7004275  |                   |
| LBS_022       |                      | NW   | Maitaki te Moa                   |                                    | 658749  | 7004311  |                   |
| LBS_023       |                      | NW   | Vai Mata                         |                                    | 659257  | 7004964  | UHM 2003 site F13 |
| LBS_024       |                      | NW   | Vai Mata                         |                                    | 659262  | 7005133  |                   |
| LBS_025       |                      | NW   | Vai Mata                         |                                    | 659282  | 7005147  |                   |
| LBS_026       |                      | NW   | Vai Mata                         |                                    | 659299  | 7005152  |                   |
| LBS_027       |                      | NW   | Vai Mata                         |                                    | 659346  | 7005110  | UHM 2003 site F7  |
| LBS_028       |                      | NW   | Vai Mata                         |                                    | 659357  | 7005192  |                   |
| LBS_029       |                      | NW   | Vai Mata                         |                                    | 659385  | 7005218  |                   |
| LBS_030       |                      | NW   | Vai Mata                         |                                    | 659386  | 7005083  | UHM 2003 site F8  |
| LBS_031       |                      | NW   | Vai Mata                         |                                    | 659422  | 7005088  | UHM 2003 site F20 |
| LBS_032       |                      | NW   | Vai Mata                         |                                    | 659458  | 7005174  |                   |
| LBS_033       |                      | NW   | Vai Mata                         |                                    | 659486  | 7005109  |                   |
| LBS_034       |                      | NW   | no                               | Omohi                              | 659693  | 7005719  |                   |
| LBS_035       |                      | NW   | no                               | Omohi                              | 659710  | 7005737  |                   |
| LBS_036       |                      | N    | no                               | Between Haŋa Tafari and Haŋa O'Teo | 661974  | 7006046  |                   |



| LOC survey no | Other LOC survey nos | Area | Proximate <i>ahulahu</i> complex | Other associations          | Easting | Northing | Additional data                                       |
|---------------|----------------------|------|----------------------------------|-----------------------------|---------|----------|---|
| LBS_037       |                      | N    | Haŋa O'Teo complex               |                             | 662049  | 7005918  | <i>Universidad de Chile</i> site 33-144<br>Hare O Hae |
| LBS_038       |                      | N    | Haŋa O'Teo complex               |                             | 662149  | 7005925  |   |
| LBS_039       |                      | N    | no                               |                             | 663066  | 7005831  |   |
| LBS_040       |                      | N    | Papa Tekena                      |                             | 663880  | 7005726  |   |
| LBS_041       |                      | N    | Papa Tekena                      |                             | 663919  | 7005727  |   |
| LBS_042       |                      | N    | Papa Tekena                      |                             | 663930  | 7005738  |   |
| LBS_043       |                      | NE   | yes                              |                             | 664233  | 7005534  |   |
| LBS_044       |                      | NE   | yes                              |                             | 664474  | 7005427  |   |
| LBS_045       |                      | NE   | no                               | Upslope of<br>Ahu Te Ipu Pu | 665262  | 7004767  |   |
| LBS_046       |                      | NE   | Te Ipu Pu                        |                             | 665816  | 7004567  |   |
| LBS_047       |                      | NE   | Te Ipu Pu                        |                             | 665808  | 7004521  |   |
| LBS_048       |                      | NE   | Te Ipu Pu                        |                             | 665827  | 7004506  |   |
| LBS_049       |                      | NE   | Anakena complex                  |                             | 666181  | 7004306  |   |
| LBS_050       |                      | NE   | Anakena complex                  |                             | 666447  | 7004278  | Smith, 1961a  |
| LBS_051       |                      | NE   | Anakena complex                  |                             | 666443  | 7004223  |   |
| LBS_052       |                      | NE   | Papa Iti                         |                             | 666848  | 7004648  |   |
| LBS_053       |                      | NE   | Heki'i complex                   |                             | 668389  | 7002502  |   |
| LBS_054       |                      | NE   | Te a Kava                        |                             | 669132  | 7001840  |   |
| LBS_055       |                      | NE   | no                               |                             | 669563  | 7001864  | Hare of Aio   |
| LBS_056       |                      | NE   | Haŋa Tau Vaka                    |                             | 670968  | 7001907  |   |
| LBS_057       |                      | NE   | Mahatua                          |                             | 671389  | 7002076  |   |
| LBS_058       |                      | NE   | Mahatua                          |                             | 671453  | 7002032  |   |
| LBS_059       |                      | NE   | Mahatua                          |                             | 671509  | 7001963  |   |
| LBS_060       |                      | S    | Vinapu complex                   |                             |         |          | Mulloy, 1961,<br>house 5                              |
| LBS_061       |                      | S    | Vinapu complex                   |                             |         |          | Mulloy, 1961,<br>house 4                              |
| LBS_062       |                      | S    | Vinapu complex                   |                             | 657532  | 6992917  |   |
| LBS_063       |                      | S    | Vinapu complex                   |                             | 657540  | 6992898  |   |
| LBS_064       |                      | S    | Vinapu complex                   |                             | 657542  | 6992888  |   |
| LBS_065       |                      | S    | Haŋa Hahave                      |                             | 659607  | 6994081  | grid reference<br>uncertain                           |
| LBS_066       |                      | S    | Haŋa Hahave                      |                             | 659627  | 6994045  | grid reference<br>uncertain                           |
| LBS_067       |                      | S    | Hua Reva O'Nero                  |                             | 663601  | 6995077  |   |
| LBS_068       |                      | S    | Hua Reva O'Nero                  |                             | 663623  | 6995103  |   |

| LOC survey no | Other LOC survey nos | Area | Proximate <i>ahulahu</i> complex | Other associations       | Easting | Northing | Additional data |
|---------------|----------------------|------|----------------------------------|--------------------------|---------|----------|-----------------|
| LBS_069       |                      | S    | Ura Uraja te Mahina              |                          | 664365  | 6995870  |                 |
| LBS_070       |                      | S    | Ura Uraja te Mahina              |                          | 664404  | 6996064  |                 |
| LBS_071       |                      | S    | Ura Uraja te Mahina              |                          | 664537  | 6996069  |                 |
| LBS_072       |                      | S    | Akahaŋa                          |                          | 664680  | 6996079  |                 |
| LBS_073       |                      | S    | Akahaŋa                          |                          | 664681  | 6996096  |                 |
| LBS_074       |                      | S    | Akahaŋa                          |                          | 664708  | 6996105  |                 |
| LBS_075       |                      | S    | Akahaŋa                          |                          | 664764  | 6996127  |                 |
| LBS_076       |                      | S    | Akahaŋa                          |                          | 664793  | 6996132  |                 |
| LBS_077       |                      | S    | Akahaŋa                          |                          | 664831  | 6996131  |                 |
| LBS_078       |                      | S    | Akahaŋa                          |                          | 664852  | 6996116  |                 |
| LBS_079       |                      | S    | Akahaŋa                          |                          | 664861  | 6996133  |                 |
| LBS_080       | AMS_243              | S    | Hoa Aŋa Vaka o Tua Poi           |                          | 665496  | 6996516  |                 |
| LBS_081       |                      | S    | Oroi<br>Hoa Aŋa Vaka o Tua Poi   |                          | 665617  | 6996549  |                 |
| LBS_082       |                      | S    | Oroi                             |                          | 665673  | 6996569  |                 |
| LBS_083       | AMS_208              | S    | Oroi                             |                          | 665726  | 6996715  |                 |
| LBS_084       | AMS_204              | S    | Oroi                             |                          | 665845  | 6996761  |                 |
| LBS_085       | AMS_138              | S    | uncertain                        | Tuta'e complex/Ara Moai  | 666151  | 6997137  |                 |
| LBS_086       | AMS_255              | S    | no                               | Ara Moai                 | 666614  | 6997378  |                 |
| LBS_087       |                      | S    | Tetera                           | Ara Moai                 | 667271  | 6997463  |                 |
| LBS_088       | AMS_013              | S    | no                               | Ara Moai                 | 667737  | 6997497  |                 |
| LBS_089       | AMS_014              | S    | no                               | Ara Moai                 | 667760  | 6997502  |                 |
| LBS_090       | AMS_053              | S    | uncertain                        | Ara Moai                 | 668470  | 6997727  |                 |
| LBS_091       |                      | S    | Haŋa Maihiku complex             |                          | 668553  | 6997206  |                 |
| LBS_092       | AMS_055              | S    | no                               | Ara Moai                 | 668726  | 6697856  |                 |
| LBS_093       |                      | S    | Haŋa Maihiku complex             |                          | 668861  | 6997140  | LOC, 2009       |
| LBS_094       | AMS_067              | S    | no                               | Ara Moai                 | 668867  | 6997720  |                 |
| LBS_095       |                      | S    | Haŋa Maihiku complex             |                          | 668886  | 6997180  |                 |
| LBS_096       |                      | S    | Haŋa Maihiku complex             |                          | 668913  | 6997175  | LOC, 2009       |
| LBS_097       |                      | S    | Haŋa Maihiku complex             |                          | 668919  | 6997133  | LOC, 2009       |
| LBS_098       |                      | S    | Haŋa Maihiku complex             |                          | 668962  | 6997136  |                 |
| LBS_099       | AMS_070              | S    | no                               | Ara Moai                 | 668981  | 6997863  |                 |
| LBS_100       | AMS_091              | S    | Puoko                            | Ara Moai/<br>Rano Raraku | 669454  | 6998195  |                 |
| LBS_101       |                      | S    | Tuu Tahi                         |                          | 669506  | 9667407  |                 |
| LBS_102       |                      | S    | no                               | Rano Raraku              | 669677  | 6998402  |                 |



| LOC survey no | Other LOC survey nos | Area | Proximate <i>ahulahu</i> complex | Other associations | Easting | Northing | Additional data |
|---------------|----------------------|------|----------------------------------|--------------------|---------|----------|-----------------|
| LBS_103       |                      | S    | One Makihi                       |                    | 670033  | 6997254  |                 |
| LBS_104       |                      | S    | Tonjariki                        |                    | 670560  | 6998619  |                 |
| LBS_105       |                      | S    | Tonjariki                        |                    | 670572  | 6998574  |                 |
| LBS_106       |                      | S    | Tonjariki                        |                    | 670576  | 6998499  |                 |
| LBS_107       |                      | S    | Tonjariki                        |                    | 670615  | 6998637  |                 |
| LBS_108       |                      | S    | Tonjariki                        |                    | 670686  | 6998578  |                 |
| LBS_109       |                      | S    | Tonjariki                        |                    | 670700  | 6998580  |                 |
| LBS_110       |                      | S    | Te Pa Hama<br>Te                 |                    | 671108  | 6998797  |                 |
| LBS_111       |                      | S    | yes                              |                    | 671479  | 6998835  |                 |
| LBS_112       | LPS_154              | east | no                               |                    | 672041  | 7001566  |                 |
| LBS_113       | LPS_264              | east | no                               |                    | 673055  | 7001665  |                 |
| LBS_114       | LPS_200              | east | Poike/Riki Riki                  |                    | 674332  | 7000791  |                 |
| LBS_115       | LPS_197              | east | no                               |                    | 674353  | 7001045  |                 |

## Appendix 2: reports on boat-shaped houses by early Western visitors and commentators

### Roggeveen, 1722

Their houses or huts are without any ornamentation, and have a length of fifty feet and a width of fifteen; the height being nine feet, as it appeared by guess. The construction of their walls, as we saw in the framework of a new building, is begun with stakes which are stuck into the ground and secured straight upright, across which other long strips of wood which I may call laths are lashed, to the height of four or five, thus completing the framework of the building. Then the interstices, which are all of oblong shape, are closed up and covered over with a sort of rush or long grass, which they put on very thickly, layer upon layer, and fasten on the inner side with lashings (the which they know how to make from a certain field product called *Piet* very neatly and skilfully, and is in no way inferior to our own thin cord); so that they are always as well shut in against wind and rain as those who live beneath thatched roofs in Holland.

These dwellings have no more than one entrance way, which is so low that they pass in creeping on their knees, being round above, as a vault or archway; the roof is also of the same form. All the chattels we saw before us (for these long huts admit no daylight except through the one entrance-way, and are destitute of windows and closely shut in all round) were mats spread on the floor, and a large flint stone which many of them use for a pillow. Furthermore they had round about their dwellings certain big blocks of hewn stone, three or four feet in breadth, and fitted together in a singularly neat and even manner; and, according to our judgment, these serve them for a stoop on which to sit and chat during the cool of the evening.

It only remains to say, in concluding the subject of these dwelling-huts, that we did not see more than six or seven of them at the place where we landed, from which it may clearly be inferred that all the Indians make use of their possessions in common, for the large size and small number of their dwellings give one to know that many live together and sleep in a single building; but if one should therefore conclude that the women are held in common among them, one must naturally expect depravity and bickering to ensue.

Roggeveen, 1908 [1831], pp. 17–19

The houses were from forty to sixty feet [*schuh*] long, six to eight feet [*schuh*] in width, and of similar height, set up on wooden stakes, daubed over with luting and covered in with palm leaves.

No remarkable furniture was found inside their houses, except some red and white coverlets [*decken*] which they often use as apparel, and also for sleeping under.

Others called from a distance from their houses and beckoned us with the hand to come to them; and there was, in the place where we were standing, a village of about twenty houses.

Behrens, 1908 [1831], p. 135–36

We marched after them in formation up to their houses in which we found nothing at all. These houses were built from a sort of straw and they looked like



beehives: others as if a Greenland sloop had been turned over. The entrances of these are so narrow and low that one has to crawl in and out on hands and knees. These houses have their openings directed towards northeast so that, when the inhabitants leave their dwellings in the morning, they can honour their god in the same direction, because all openings correspond with the statues.

Bouman, 1994 [1911], p. 99

### **Gonzales, 1770**

Putting aside their shyness, [the islanders] came close up to our people and conducted us to see a long dwelling-house which was about a quarter of a league off. This house was 27 paces in length,  $2\frac{1}{2}$  *varas* [1 vara=84cm] high at the centre, and  $1\frac{1}{4}$  *varas* at the ends, more or less; and at the middle part was a doorway 1 *vara* in height. It was framed on some six poles of 4 *varas* long, and a span 1 in thickness.

Hervé, 1908 [1774], p. 123

The more polished or powerful persons, whether in virtue of their age or of authority, are held in esteem. These inhabit small huts covered with reeds [*titora*] and constructed in the form of a large tunnel, in whose bilge or bellying portion [*vientre ò bariga*] is the entrance, after the manner of a trap-door for cats' egress, so narrow that only one man can pass in or out at a time, and that with effort. Others (whom I believe to be their ministers) occupy dwellings close to the statues; these are built of earth below, but with an entrance way or porch of very roughly hewn and clumsily set up stones, after the fashion of a wall, with a certain number of steps for passing from one platform or surface of ground to another on different levels. It is known that they work the stone, on which may be seen several different figures, squares, oblongs, arcs [*rumbos*], triangles, and trapezia, by means of another stone of harder substance than the mass, and the same method is followed, I believe, in fashioning the statues.

de Agüera y Infanzon, 1908 [1771], p. 102

### **Cook, 1774**

Their houses are low miserable huts, constructed by setting sticks upright in the ground, at six or eight feet distance, then bending them towards each other, and tying them together at the top, forming thereby a kind of Gothic arch. The longest sticks are placed in the middle, and shorter ones each way, and a less distance asunder, by which means the building is highest and broadest in the middle, and lower and narrower towards each end. To these are tied others horizontally, and the whole is thatched over with leaves of sugar-cane. The door-way is in the middle of one side, formed like a porch, and so low and narrow, as just to admit a man to enter upon all fours. The largest house I saw was about sixty feet long, eight or nine feet high in the middle, and three or four at each end; its breadth, at these parts, was nearly equal to its height. Some have a kind of vaulted houses built with stone, and partly under ground; but I never was in one of these.

Cook, 2007 [1777], p. 180

What I have seen of their habitations are of an oval form about 10 or 12 feet in length, in height 4 or 5 feet, made of rushes, reeds and plantain leaves,

strengthened with a few sticks fastened in a platform of stone on which they are built. At one side is added a small porch through which the creep into the hut; no furniture observed within, only a little straw on which they compose themselves at night.

Gilbert, 2008 [1774], p. 17

We now likewise began to discern their houses, which seemed to be extremely low and long, highest in the middle, and sloping down towards both extremities. They much resembled a canoe turned with the keel or bottom up-wards. In the middle there seemed to be a small entrance or door, which was so low, that a man of a common size must stoop to get in.

Forster, 2000 [1777], p. 302

We found the face of the country more barren and ruinous the farther we advanced. The small number of inhabitants, who met us at the landing-place, seemed to have been the bulk of the nation, since we met no other people on our walk; and yet for these few we did not see above ten or twelve huts, though the view commanded a great part of the island. One of the sightliest of these was situated on a little hillock, about half a mile from the sea, which we ascended. Its construction was such as evinced the poverty and wretched condition of its owners. The foundation consisted of stones about a foot long, laid level with the surface in two curve lines, converging at the extremities. These lines were about six feet asunder in the middle, but not above one foot at the ends. In every stone of this foundation we observed one or two holes, in each of which a stake was inserted. The middlemost stakes were six feet high, but the others gradually diminished to two feet. On the top the stakes all converged, and were tied by strings to transverse sticks, by which they were kept together. A kind of thatch, made of small sticks, and covered with a neat mat-work of sugar-cane leaves, leaned on each row of stakes, forming a very sharp ridge or angle at the top, and resting firmly on the ground at the bottom. A hole was left on one side, about eighteen inches or two feet high, over which the people had built a round projecting funnel to keep off the wet. We crept on all fours into this opening, and found the inside of the hut perfectly naked and empty, there being not so much as a wisp of straw to lie down upon. We could not stand upright in any part except just in the middle, and the whole place appeared dark and dismal. The natives told us they passed the night in these huts, and we easily conceived their situation to be uncomfortable, especially as we saw so very few of them, that they must be crammed full, unless the generality of the people lie in the open air, and leave these wretched dwellings to their chiefs, or make use of them only in bad weather.

Forster, 2000 [1777], p. 307

At a little distance from these fields we met with two huts, constructed exactly like that which I have mentioned, but much smaller. The entrance was stopped up with a great quantity of small brushwood...

Forster, 2000 [1777], p. 311

### **The Ruby, 1795**

Their houses resemble so many large beehives, the front describing the third of a circle and from their being so close to the surface I conclude they must



be hollowed out some depth in the earth... the entrance [sic] is right in the centre of the front, and seems to project like a porch two or three feet beyond it. They are composed of reeds such as the coopers use of which they have an abundance.

Bishop, 2005 [1795], p. 62

### **La Pérouse, 1786**

... I am almost certain that their houses are in common, at least to a whole village or district. I measured one of these houses which was near us;<sup>1</sup> it was 300 feet in length, 10 in breadth, and in the middle ten in height. Its form was that of a canoe inverted, and there was no entrance except by creeping on the hands through two doors, both less than two feet high. This house, which would contain more than two hundred persons, could not be the residence of the chief, for there was no furniture, and so great a space would have been useless to him; with two or three other houses not far distant, it therefore forms a village.

<sup>1</sup> This house was not yet finished, so that Captain Cook could not have seen it.

La Pérouse, 1798 [1797], pp. 71-72

Some of their dwellings are, as I have already observed, subterranean, but as a proof that there are marshy places in the interior of the island, others are constructed of rushes, very neatly arranged, which afford a perfect shelter from the rain. The building rests on a base of hewn stone,<sup>2</sup> 18 inches thick, in which they have bored holes at equal distances to admit poles which bending archwise, form the roof, the spaces of which are filled up with a thatch of reeds.

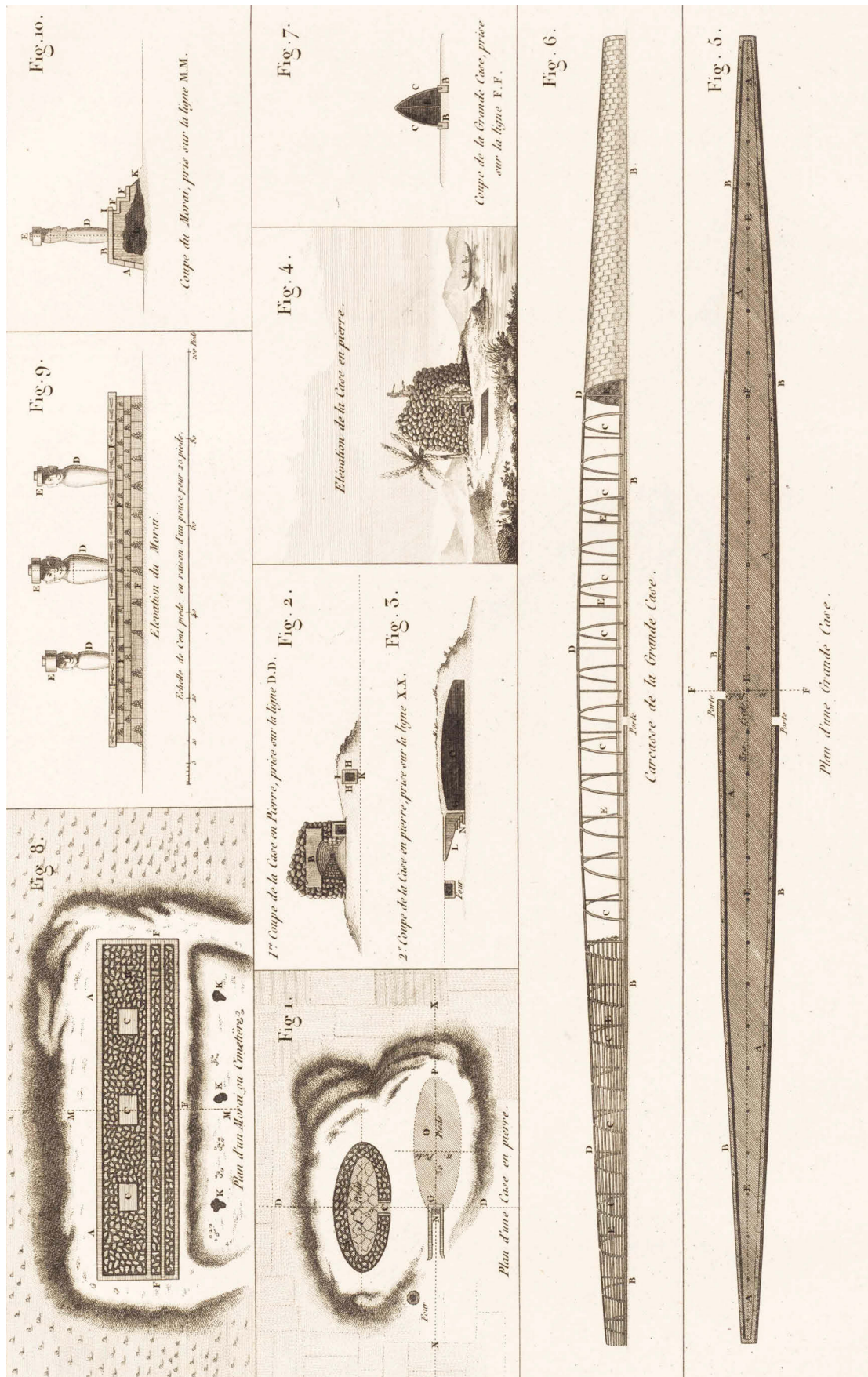
<sup>2</sup> These stones are not granite, but solid lava.

La Pérouse, 1798 [1797], p. 72

Having at length descried a collection of huts I directed my steps to this little village as it were, of which one of the houses was 330 feet in length, and in the shape of an inverted canoe. Very near this hut we observed the foundations of several others, which now no longer exist; they are composed of lava cut into stones, in which there are holes of about two inches in diameter.

de Langle, 1798 [1797], pp. 79-80

The same plan is observed in other cottages situated in the middle of considerable plantations. These have the ellipsis of the ground plan "A" very eccentric (fig. 5.) (**Figure A2.1**) and are very narrow in proportion to their length. Their foundations "B" are of hewn stone sunk throughout their breadth in the ground. Their average length is two feet, and their thickness six inches, having holes at different intervals to receive the stakes "C" (fig. 6) each serving for main timbers, and meeting other stakes "D". These last terminate the roof, and are supported by perpendicular stakes "E", fixed in the ground at intervals of ten feet. The main timbers are bound together by transverse perches reaching along the whole length at two feet distance from each other. The highest point is in the center [sic], and if a plane perpendicular to the transverse axis of the ellipsis were made to pass through the roof, this would



**Figure A2.1**

"Details géométriques des monumens de l'Ile de Pâque" (La Pérouse, 1779b. pl. 12)



also be of a semi-elliptical form. (See the plan, the framing and the vertical section, taken longitudinally, fig. 5, 6, 7). The whole is covered with rushes of nine or ten lines diameter at the lower end, united together like matts, by threads twisted with the hand. The two doors, one on each side, are not larger than those of the small cabins; and the oven of the same size with that before described, is palisadoed to the windward.

Transverse axis of the ellipsis 310 feet.  
 Conjugate ditto 10  
 Height at the center [sic] 10  
 Height at the extremities 4  
 Width at ditto 3

It cannot be said, however, that the form of the large dwellings is invariable; for some of them make towards the middle, either in the ground plan or the elevation, a sharper curvature than that of the ellipsis.

The small cabins are of the ordinary form; and most of them so very small as not without difficulty to afford room enough for six persons. Some have at the entrance a covered portico, which architects would perhaps call either a *niche* or *peristyle*, though it deserves neither the one nor the other of these names.

Bernizet, 1798 [1797], pp. 256–57

### **Discoverer, 1827**

Their houses are low in shape like the covering of a waggon but not quite so high *with a door at each end* [my italics].

Cumings, 2008 [1827], p. 96

### **Eyraud, 1864**

It was the first time I had been in a Kanac dwelling [...] The furnishings are very simple: the dishes consist of a calabash for carrying water and a little back of plaited straw for carrying potatoes [...] Think of a mussel that is half open that is resting on its valve and you will have an idea of the shape of the house. A few sticks covered with straw make the framework and the roof. An opening like the opening to an oven allows the family and their visitors to enter—not on their knees but on their stomachs. This entry marks the middle of the building and allows enough light in that one can see oneself after one has been inside for a few moments.

You cannot imagine how many kanacs find shelter under this thatched roof. It is quite warm inside, and one is exposed to the consequences of the poor hygiene of the islanders and lack of cleanliness of their possessions. One cannot go outside without carrying, in ones clothes, a large number of the inhabitants of the hut. But, at night, when one had no other place to shelter, one has to do what everyone else does. So one takes one's place; which is assigned to each one by the very nature of the hut. The door, being in the middle, establishes an axis which divides the hut into two equal parts. People sleep lying head to toe alternately, leaving between them enough space for others to come and go. One stretches out, thus, across the width of the hut, arranging one's limbs as best one can, and one tries to sleep.

Eyraud, 2004 [1864], pp. 11–12

I have seen them have noisy arguments and burn down each others huts...

Eyraud, 2004 [1864], pp. 25–26

A few brave souls approached Torometi's hut, tore at the straw that covered it, and tried to tip it over. Immediately it burst into flames. It was windy and the fire was over in several minutes.

Eyraud, 2004 [1864], p., 31

### **HMS Topaz, 1868**

The ordinary dwellings of the natives are long narrow houses made of sticks planted in the ground at some distance apart, bent over, and tied together; the whole is thatched with straw and rushes, and resembles in shape a large canoe upside down. These average from 20 to 25 feet in length, 7 or 8 feet in breadth, and between 5 and 6 feet in height at the centre, tapering towards the ends. There are no windows, and the door is a hole in the middle of one side, from 1 foot to 18 inches square, just large enough to admit a man crawling in. Some of these houses are much larger, however; one we saw was between 40 and 50 feet long. They have no partitions or furniture, and the only household utensils we saw were a few gourds,

Dundas, 2000 [1872], p. 37

Close to the sea were two other buildings, and the space between was occupied by about one hundred light-brown oval huts, each with a small square hole in front; behind this settlement (Hanga-roa)...

The huts, shaped like an egg cut in two longways, were exactly as Cook described, except that the largest was not so much as thirty feet long; the thatch of reeds and cane was neatly laced on, and out of the doors, which were about two feet square, numerous bushy heads looked up at us and called out a welcome.

Sainthill, 2000 [1870], p. 107

The houses they now live in are much smaller than formerly. They are something like a canoe overset: a framework of sticks made, and on this grass is thatched. A fair-sized house now is 30 feet long by 12 or 14 broad, and 5 1/2 high. But they were 200 feet long; and those used for their assemblings, dancings, and choral purposes, were raised on low stone walls, on which thatching was arched. The house is windowless; no hearth nor fire; one aperture in the side, of about 18 to 20 inches square: this is closed by a net, to exclude the fowls. As the natives pack pretty closely in these, the heat and smell are indescribable.

Palmer, 1870, p. 110

### **Loti, 1872**

We stop in front of the many thatched dwellings that are flattened amongst the rocks and the sand, where they resemble the backs of sleeping animals. My escorts invite me to go inside and I have to get down on my hands and knees, wriggling like a cat going through a cat door, because the entrance, at ground level and guarded by two granite divinities with sinister expressions, is a round hole that is barely two feet high.

Inside the hut, which smells like an animal's den, it is impossible to see





**Figure A2.2**

Pierre Loti's take on the Rapa Nui boat-shaped house (Loti, 1873, p. 66)

anything, in particular because of the crowd of people milling around and their shadows; of course it is also impossible to stand up and, after the fresh and invigorating breeze outside, the air is barely breathable.

I am invited to sit down on mats beside the "chiefess" and her daughter [...]. Now my eyes are getting used to the light inside the hut and I can see cats and rabbits moving around us.

Loti, 2004 [1899], pp. 69–70

They come from everywhere: from the hollows of rocks in which they have been sleeping, and from huts so low that it seems impossible for human beings to inhabit such places. From the distance we had not noticed these thatched huts, though we now see that there are quite a number of them, scarce raised above, and of the same colour as the ground.

After a few moments' reflection I decide upon requesting the old chief to grant me a little shelter, and, crawling along on all-fours, I worm my way into his hut. The hut is very warm, and the ground is covered with extended human forms. Beneath this carapace, which has about the capacity of an overturned canoe, lives the chief with his family...

From the dark corner where I am lying I can see a brilliant sunbeam shining through the hole which takes the place of a door; on the floor of the hut it casts the shadow of an idol guarding the entrance, and also those of a couple of absurd-looking cats...

The reed roof that shelters me is supported on ribs of palm-trees[...] In this habitation, which is less than five feet high and about a dozen feet in length, innumerable objects are carefully hung up small idols of black wood, swaddled up in esparto grass, lances with chipped flint points, human-faced

paddles, plumed coiffures, ornaments connected with dancing and fighting, and many utensils of the most terrifying aspect, with whose use I am totally unacquainted though they all appear extremely old.

Loti, 1914, pp. 178–80

### Chilean summary, 1873

Their houses, or huts, have the shape of an upturned dugout canoe, which seems to confirm that the first settlers on the island arrived by sea, and that their dugouts, lying on the ground and turned upside down, were their first dwellings. Their construction is carried out as follows: stones about a foot long, levelled with the ground surface, form two curved lines that serve as foundations, most often encompassing a space of sixty feet in length; a space of eight to nine feet in the middle or centre, and only three or four at the ends, separates the two curved lines. In each of these foundation stones, one or two holes can be seen, filled with *toromido* [*toromiro*] stakes; these are six feet high in the middle, while the others gradually decrease to two feet. These stakes converge at the top and are tied with ropes to rods or crossbeams that join them together. A kind of shelter made of thin poles, covered with clean matting and sugarcane leaves, covers the spaces between the stakes, forming a very acute angle at the top. On one side is a hole about eighteen inches, or two feet, high. To enter this opening, one must crawl, as the saying goes, on all fours. It is impossible to stand upright anywhere, except in the centre of these huts, where everything is gloomy and dismal. The natives occupy these huts at night, where they must lie on top of each other, since, apart from the poor quality of these dwellings, there are very few. There are smaller houses; but there are also larger ones. La Pérouse measured one that was 310 feet long, 10 feet wide, and the same height in the middle, and that could hold 200 people. He did not find any furniture in it. It seems that the natives built taller houses during the rainy season, as can be seen from the account of their festivals, which will be given later.

Philippi, 1873, pp. 22–23

### Geiseler, 1882

On Rapa Nui two major types of dwellings are to be distinguished, i.e. in the villages the ordinary living quarters with stone foundations, wooden posts, and bark cloth coverings are distinct from the old stone houses on Rano Kao [sic] [...]. Both house types are oval and longish, they correspond in height and width, and their shapes look like turned over boats...

The ordinary village houses were 7–12m long. Their foundations consisted of massive stones of the same type as the idols of Rano Roraka [sic]. These foundations stones were trimmed with stone hammers and chisels to the width of approximately 25cm and were chiselled flat on the top. They were equipped with round, approximately 3–5cm wide, 5cm deep holes into which the house posts were placed [...]. A type of semi-circular stone was used on both ends of the house bases. In the middle of the front side there was an opening which had on each of its sides a longish piece of stone pointing outwards and which thus formed the entrance. No houses were found where there were two openings in the foundation.

After the house posts—usually made of toromiro wood—were put in their places, they began weaving space dividers from banana leaves, called Hau, and after this they continued with roofing which consisted of sugar cane stalks,



leaves and long grass. The heights of these dwellings or of their entrances could no longer be determined with absolute certainty. Also, one could not find out what kinds of roofs were used, i.e., whether these were made of bent or straight pieces of wood, since there is now not even one of these old houses left on the island. Still, it could be ascertained from the corresponding statements of various natives that the roofs and entrances has precisely the same shapes as the stone houses found by Rano Kao [sic].

All the dwellings were used exclusively for sleeping and as protections against rain and rough weather. Otherwise they always stayed in front of the huts and especially around the cooking pit [...]. Here too they ate their meals [...]. Only a short time ago did they start giving up this type of architecture entirely...

Inside [the ordinary village houses] there was always a rush mat for sleeping, several rush-pockets with utensils, tapa material, a few tools, adornments, and wooden idols.

Geiseler, 1995 [1882], p. 75–78

### **The Mana expedition, 1914–15**

Houses, however, did exist, which were built in the form of a long upturned canoe; they were made of sticks, the tops of which were tied together, the whole being thatched successively with reeds, grass, and sugar-cane. In the best of these houses, the foundations, which are equivalent to the gunwale of the boat, are made of wrought stones let into the ground ; they resemble the curbstones of a street pavement save that the length is greater. In the top of the stones were holes from which sprang the curved rods, which were equivalent to the ribs of a boat, and formed the walls and roof. The end stones of the house are carefully worked on the curve, and it is very rare to find them still in place, as they were comparatively light, weighing from one to two hundredweight, and easily carried off. Even the heavier stones were at times seized upon as booty in enemy raids; one measuring 15 feet was pointed out to us near an ahu on the south coast, which had been brought all the way from the north side of the island. In the middle of one side of the house was a doorway, and in the front of it a porch, which had also stone foundations. The whole space in front of the house was neatly paved with water-worn boulders, in the same manner as the ahu. This served as a *stoep* on which to sit and talk, but its practical utility was obvious to ourselves in the rainy seasons, when the entrance to our tents and houses became deep in mud.

Many of the surviving old people were born and brought up in these houses, which are known as "hare paenga." The old man, for example, before alluded to, who was brought out to Raraku, roved round the mountain telling with excitement who occupied the different houses in the days of his youth. He gave a particularly graphic description of the scene after sundown, when all were gathered within for the evening meal. In addition to the main door, there was, he said, an opening near each end by which the food was passed in and then from hand to hand ; as perfect darkness reigned, a sharp watch had to be kept that it all reached its proper owners. He lay down within the old foundations to show how the inhabitants slept. This was parallel to the long axis of the house, the head being towards the door ; the old people were in the centre in couples, and the younger ones in the ends. The largest of these houses, which had some unique features, measured 122 feet in length, with an extreme width of 12 feet ; but some 50 feet by 5 feet or 6 feet are

more usual measurements. They were often shared by related families and held anything from ten to thirty, or even more, persons.

Routledge, 1919, pp. 215–16

### **Skottsberg, 1917**

Foundations of old houses are seen in many places, and several were noted on our excursion to Mt. Katiki. Of one a sketch was made, also showing the paved area in front, but without foundation-stones for a porch. None of these dwelling-houses are left. Between Mataverí and Hanga Roa are a couple of grass huts (Plate 10) which give us a faint idea of what the old houses were like. They are small, lack the stone foundation, and have the entrance at *one end* [my italics].

Skottsberg, 1956, p. 12



**Figure A2.3**

1917 photo of a traditional Rapa Nui hut (Skottsberg, 1955, pl. 10)



Appendix 3: prompt sheet used by LOC in the recording of *hare paenga*

|   |  |   |                    |
|---|--|---|--------------------|
| <b>1. Site name</b>   | <b>2. Grid reference</b>   | <b>3. Site number</b>   | <b>Hare paenga</b> |
| <b>4. Associated <i>ahu</i></b>   | • yes  | • no  |                    |
| <b>5. Quality</b>   | • high<br>• medium   | • poor  |                    |
| <b>6. Curb complete, partial or absent</b>  | • front<br>• back<br>• ends  | <i>If complete —</i><br>• count pu paenga<br>• count other stones   |                    |
| <b>7. Ends without <i>pu</i></b>  | • yes<br>• no<br>• not applicable  | • describe  |                    |
| <b>8. Doorway</b>   | • no evidence<br>• gap in curb<br>• 1 or 2 passage stones<br>• measure length and breadth at threshold & outer end | • threshold<br>• uprights (describe)<br>• no doorway  |                    |
| <b>9. Pavement</b>  | • complete<br>• partial<br>• fragments<br>• none   | <i>If complete —</i><br>• count poro & note size grading (sorting)  |                    |
| <b>10. Orientation</b>  | • <i>ahu</i><br>• <i>ahu</i> wing<br>• just off <i>ahu</i>   | • plaza<br>• away from <i>ahu</i><br>• other (describe)   |                    |
| <b>11. Paced length (or length in m)</b>  |  |   |                    |
| <b>12. Big 'backstone' (large <i>pu paenga</i> at centre of rear curb, opposite entrance)</b> | • yes<br>• no<br>• pair of large stones<br>• unknown   | <i>If present —</i><br>• measure  |                    |
| <b>13. Trend of large stones towards centre</b>   | • yes<br>• no  | • weak trend<br>• other (describe)  |                    |
| <b>14. <i>Pu</i></b>  | • dense<br>• sparse<br>• variable  | • measure max & min distances between pu<br>• deep or shallow pu<br><i>If curb complete, count pu</i>   |                    |
| <b>15. Burning</b>  | • discolouration   | • cracking  |                    |
| <b>16. Stone types</b>  | • number of varieties  | <i>Check local geology if unknown; then —</i><br>• list local types<br>• list non-local types<br>• list types of unknown origin   |                    |
| <b>17. Re-use</b>   | • minimum number of re-uses  | • half pu<br>• broken stones in run<br>• bad fits — discontinuities in size and/or finish<br>• entrance stones in curb<br>• pu in threshold<br>• other (describe)<br><i>Note correspondences with different geologies</i> |                    |
| <b>18. Comments</b>   |  |   |                    |

| 1. Nombre del yacimiento  | 2. Coordenadas  | 3. Número del yacimiento   |
|---|---|--|
| 4. <i>Ahu</i> asociados   | • si  | • no   |
| 5. Calidad  | • alta<br>• media   | • baja   |
| 6. Cimientos completos, parciales o ausentes                            | • parte delantera<br>• parte trasera<br>• extremos  | <i>En caso de que esté completa —</i><br>• número de pu paenga<br>• número otros bloques de piedra   |
| 7. Extremos sin <i>pu</i>   | • si<br>• no<br>• no aplicable  | • descripción  |
| 8. Entrada  | • no hay restos<br>• abertura en los cimientos<br>• 1 bloque de pasaje<br>• longitud y anchura en el umbral y en la cara exterior | • 2 bloques de pasaje<br>• piedra umbral<br>• montantes (descripción)<br>• no hay entrada  |
| 9. Pavimento  | • completo<br>• parcial<br>• fragmentos<br>• inexistente  | <i>En caso de estar completo —</i><br>• número de poro & y tamaño  |
| 10. Orientación   | • <i>ahu</i><br>• ala de <i>ahu</i><br>• en la inmediaciones de un <i>ahu</i>   | • plaza<br>• lejos de un <i>ahu</i><br>• otros (descripción)   |
| 11. Longitud (en m)   |   |  |
| 12. <i>Pu paenga</i> de gran tamaño contrafachada (frente a la entrada) | • si<br>• no<br>• pareja de <i>pu paenga</i><br>• desconocido   | <i>Si se encuentra presente —</i><br>• Dimensiones   |
| 13. ¿Es el tamaño de los bloques es más grande hacia el centro?         | • si<br>• no  | • si, pero sin grandes diferencias<br>• otro (descripción)   |
| 14. <i>Pu</i>   | • densos<br>• escasos<br>• variable   | • mide las distancias máximas y mínimas entre pu<br>• pu muy profundos o poco profundos<br>• Si están en los cimientos, cuenta en número de pu   |
| 15. Indicios de fuego   | • decoloración  | • grietas  |
| 16. Tipos de piedra   | • número de variedades  | <i>Comprobar geología local; después —</i><br>• lista variedades locales<br>• lista variedades no locales<br>• lista variedades desconocidas   |
| 17. Reutilización   | • número mínimo de reutilizaciones  | • medios pu<br>• bloques rotos<br>• juntas imperfectas – variaciones en tamaño y/o acabado<br>• piedras umbral integradas en los cimientos<br>• otros (descripción)<br><i>Identificar correspondencia con combinaciones geológicas</i> |
| 18. Comentarios   |   |  |



Appendix 4: *hare paerua* form

| LOC survey no | House type         | Front curb  | Rear curb           | Doorway in side of house              | Doorway structure | Entrance paved | Ends with <i>pu paerua</i> or <i>pini</i> | Extension of curb fashioned from stones without <i>pu</i> | End closed by stones without <i>pu</i> | Pavement    |
|---------------|--------------------|-------------|---------------------|---------------------------------------|-------------------|----------------|---|---|--|-------------|
| LBS_001       | <i>hare paerua</i> |             |                     |                                       |                   | reconstructed  |   |   |  |             |
| LBS_002       | <i>hare nui</i>    | partial     | yes                 | possible (2 gaps off centre at front) | no                | no             | yes—right                                 | no  | n/a                                    | no          |
| LBS_003       | <i>hare nui</i>    | yes         | yes                 | no                                    | no                | n/a            | no  | no  | n/a                                    | no          |
| LBS_004       | <i>hare paerua</i> | partial     | partial             | gap in curb                           | no                | no             | no  | no  | n/a                                    | no          |
| LBS_005       | <i>hare paerua</i> | yes         | partial             | no evidence                           | no                | no evidence    | no  | no  | n/a                                    | no          |
| LBS_006       | <i>hare paerua</i> | yes         | yes                 | yes                                   | yes               | no             | yes—right/S end                           | no  | n/a                                    | yes         |
| LBS_007       | <i>hare paerua</i> | yes         | yes                 | yes                                   | yes               | no record      | yes                                       | yes—one end   | no                                     | yes         |
| LBS_008       | <i>hare paerua</i> | yes         | yes                 | yes                                   | yes               | small poro     | yes—S end                                 | no  | n/a                                    | yes         |
| LBS_009       | <i>hare paerua</i> | yes         | yes                 | yes                                   | partial           | small poro     | yes—S end                                 | no  | n/a                                    | yes         |
| LBS_010       | <i>hare paerua</i> | yes         | yes                 | yes                                   | partial           | no record      | no  | no  | n/a                                    | yes         |
| LBS_011       | <i>hare paerua</i> | fragmentary | yes                 | no evidence                           | no                | no             | no  | no  | n/a                                    | 1 poro only |
| LBS_012       | <i>hare paerua</i> | yes         | yes                 | yes                                   | yes               | small poro     | no  | no  | n/a                                    | yes         |
| LBS_013       | <i>hare paerua</i> | partial     | yes                 | yes                                   | yes               | small poro     | no  | yes—both ends   | no                                     | partial     |
| LBS_014       | <i>hare paerua</i> | partial     | yes                 | gap in curb                           | no                | poro           | no  | no  | n/a                                    | fragmentary |
| LBS_015       | <i>hare paerua</i> | partial     | partial—fragmentary | yes                                   | no                | no record      | yes—front right/S end                     | no  | n/a                                    | partial     |
| LBS_016       | <i>hare nui</i>    | partial     | partial             | yes                                   | no                | no             | yes                                       | no  | n/a                                    | fragmentary |
| LBS_017       | ? <i>hare nui</i>  | no          | yes                 | no evidence                           | no evidence       | no             | no  | no  | n/a                                    | no          |
| LBS_018       | ? <i>hare nui</i>  | partial     | partial             | no evidence                           | no                | no             | no  | yes—one end   | no                                     | no          |
| LBS_019       | <i>hare paerua</i> | yes         | yes                 | yes                                   | no                | poro           | no  | yes—both ends   | yes                                    | fragmentary |
| LBS_020       | <i>hare paerua</i> | yes         | yes                 | yes                                   | partial           | no             | no  | yes—both ends   | no record                              | no          |
| LBS_021       | <i>hare paerua</i> | yes         | yes                 | yes                                   | yes               | no             | unknown                                   | yes—both ends   | not visibly                            | partial     |
| LBS_022       | <i>hare paerua</i> | yes         | yes                 | yes                                   | yes               | no             | no  | yes—both ends   | no                                     | fragmentary |

| LOC survey no | House type        | Front curb | Rear curb         | Doorway in side of house | Doorway structure | Entrance paved | Ends with <i>pu paerā</i> or <i>pini</i>      | Extension of curb fashioned from stones without <i>pu</i> | End closed by stones without <i>pu</i> | Pavement         |
|---------------|-------------------|------------|-------------------|--------------------------|-------------------|----------------|---|---|--|------------------|
| LBS_023       | <i>hare paerā</i> | partial    | no                | gap in curb              | no                | no record      | no  | yes—one end   | no                                     | very fragmentary |
| LBS_024       | <i>hare paerā</i> | yes        | yes               | yes                      | yes               | small poro     | yes—right/NE end                              | yes—one end   | no                                     | yes              |
| LBS_025       | <i>hare paerā</i> | yes        | yes               | yes                      | yes               | small poro     | no  | possibly—one end  | no                                     | partial          |
| LBS_026       | <i>hare paerā</i> | partial    | partial           | gap in curb              | no                | no             | no  | no  | n/a                                    | no               |
| LBS_027       | <i>hare paerā</i> | yes        | yes               | yes                      | no                | no record      | no  | yes—one end   | no                                     | fragmentary      |
| LBS_028       | <i>hare paerā</i> | yes        | yes               | yes                      | yes               | small poro     | yes   | no  | n/a                                    | yes              |
| LBS_029       | <i>hare paerā</i> | yes        | partial           | gap in curb              | no                | no             | no  | no  | n/a                                    | no               |
| LBS_030       | <i>hare paerā</i> | yes        | partial           | yes                      | no                | no record      | yes—left/SW end                               | no  | n/a                                    | very fragmentary |
| LBS_031       | <i>hare paerā</i> | yes        | yes               | yes                      | no                | possibly       | yes—NE end                                    | no  | n/a                                    | fragmentary      |
| LBS_032       | <i>hare paerā</i> | partial    | yes               | gap in curb              | probably          | no             | yes   | no  | n/a                                    | fragmentary      |
| LBS_033       | <i>hare paerā</i> | yes        | yes               | yes                      | yes               | small poro     | yes—right back                                | yes—one end   | partially                              | partial          |
| LBS_034       | <i>hare paerā</i> | yes        | partially visible | yes                      | yes               | no evidence    | possible <i>pu</i> in natural outcrop to left | unknown   | unknown                                | partial          |
| LBS_035       | <i>hare paerā</i> | partial    | yes               | yes                      | yes               | no             | no  | possibly—one end  | no                                     | none             |
| LBS_036       | without curb      | no         | no                | no evidence              | no                | no             | no  | no  | n/a                                    | yes              |
| LBS_037       | <i>hare nui</i>   | partial    | fragment          | no evidence              | no                | no             | no  | unknown   | no                                     | no               |
| LBS_038       | without curb      | no         | no                | no evidence              | no                | no             | no  | no  | n/a                                    | yes              |
| LBS_039       | without curb      | no         | no                | no evidence              | n/a               | no             | no  | no  | n/a                                    | partial          |
| LBS_040       | <i>hare paerā</i> | yes        | yes               | yes                      | yes               | 1 small poro   | yes—right/E end                               | no  | n/a                                    | partial          |
| LBS_041       | <i>hare paerā</i> | partial    | partial           | gap in curb              | no                | no record      | no  | no  | n/a                                    | none             |



| LOC survey no | House type         | Front curb | Rear curb | Doorway in side of house | Doorway structure | Entrance paved    | Ends with <i>pu paerŋa</i> or <i>pini</i> | Extension of curb fashioned from stones without <i>pu</i> | End closed by stones without <i>pu</i> | Pavement    |
|---------------|--------------------|------------|-----------|--------------------------|-------------------|-------------------|---|---|--|-------------|
| LBS_042       | <i>hare paerŋa</i> | partial    | yes       | yes                      | yes               | no                | yes                                       | no  | n/a                                    | fragmentary |
| LBS_043       | <i>hare paerŋa</i> | yes        | yes       | gap in curb              | no                | small poro        | no  | yes—both ends   | almost—at right end                    | partial     |
| LBS_044       | <i>hare nui</i>    | partial    | partial   | no evidence              | no                | no                | yes                                       | no  | n/a                                    | no          |
| LBS_045       | <i>hare paerŋa</i> | yes        | yes       | yes                      | yes               | no clear evidence | no (but fragments nearby)                 | no  | n/a                                    | fragmentary |
| LBS_046       | <i>hare paerŋa</i> | partial    | partial   | no evidence              | no                | no                | no  | no  | n/a                                    | no          |
| LBS_047       | <i>hare paerŋa</i> | partial    | partial   | possible                 | no                | no                | no  | no  | n/a                                    | no          |
| LBS_048       | <i>hare paerŋa</i> | yes        | yes       | no—uninterrupted curb    | no                | no                | no  | yes—both ends   | yes—N end                              | fragmentary |
| LBS_049       | <i>hare paerŋa</i> | yes        | yes       | yes                      | no                | no                | no evidence                               | no evidence   | unknown                                | fragmentary |
| LBS_050       | <i>hare paerŋa</i> | yes        | yes       | yes                      | no                | no                | yes                                       | no  | n/a                                    | fragment    |
| LBS_051       | <i>hare nui</i>    | no         | yes       | no evidence              | no                | no                | no  | no  | n/a                                    | no evidence |
| LBS_052       | <i>hare paerŋa</i> | yes        | partial   | yes                      | no                | small poro        | no  | yes—both ends   | yes—left end                           | partial     |
| LBS_053       | <i>hare paerŋa</i> | yes        | yes       | yes                      | yes               | yes               | yes—front right                           | yes—one end   | no                                     | yes         |
| LBS_054       | <i>hare paerŋa</i> | yes        | yes       | yes                      | no                | small poro        | no  | yes—one end   | no                                     | partial     |
| LBS_055       | <i>hare nui</i>    | yes        | yes       | no                       | no                | no                | no  | no  | no                                     | no          |
| LBS_056       | <i>hare paerŋa</i> | yes        | yes       | yes                      | no                | no record         | yes—left/S end                            | yes—one end   | no                                     | yes         |
| LBS_057       | <i>hare paerŋa</i> | partial    | yes       | yes                      | yes               | unclear           | no  | yes—both ends   | yes—left end                           | yes         |
| LBS_058       | <i>hare paerŋa</i> | yes        | yes       | gap in curb              | no                | no record         | no  | no  | n/a                                    | no          |
| LBS_059       | <i>hare paerŋa</i> | yes        | yes       | yes                      | yes               | no record         | yes—right end                             | no  | n/a                                    | partial     |
| LBS_060       | <i>hare paerŋa</i> | no         | yes       | no evidence              | no                | no                | no  | yes—one end   | no                                     | no evidence |
| LBS_061       | <i>hare paerŋa</i> | partial    | partial   | yes                      | yes               | no                | no  | no  | n/a                                    | no evidence |

| LOC survey no | House type         | Front curb  | Rear curb | Doorway in side of house | Doorway structure | Entrance paved                 | Ends with <i>pu paerua</i> or <i>pini</i> | Extension of curb fashioned from stones without <i>pu</i> | End closed by stones without <i>pu</i> | Pavement                |
|---------------|--------------------|-------------|-----------|--------------------------|-------------------|--------------------------------|---|---|--|-------------------------|
| LBS_062       | <i>hare paerua</i> | partial     | yes       | yes                      | yes               | no                             | no  | yes—one end   | yes                                    | fragmentary—traces only |
| LBS_063       | <i>hare paerua</i> | yes         | yes       | yes                      | possibly          | no                             | no  | no  | n/a                                    | no                      |
| LBS_064       | <i>hare paerua</i> | yes         | partial   | yes                      | possibly          | no                             | no  | no  | n/a                                    | no                      |
| LBS_065       | <i>hare paerua</i> | partial     | partial   | gap in kerb              | no                | no record                      | no  | no  | n/a                                    | fragmentary             |
| LBS_066       | <i>hare paerua</i> | partial     | partial   | no evidence              | no                | no                             | no  | no  | n/a                                    | none                    |
| LBS_067       | without curb       | no          | no        | no evidence              | no                | no                             | no  | no  | n/a                                    | fragmentary             |
| LBS_068       | without curb       | no          | no        | yes                      | partial           | small poro                     | no  | no  | n/a                                    | partial                 |
| LBS_069       | <i>hare paerua</i> | no          | partial   | no evidence              | no                | no                             | no  | no  | n/a                                    | no                      |
| LBS_070       | <i>hare paerua</i> | fragment    | partial   | yes                      | no                | no                             | no  | no  | n/a                                    | no                      |
| LBS_071       | <i>hare paerua</i> | partial     | partial   | gap in curb              | no                | continuation of house pavement | no  | no  | n/a                                    | yes                     |
| LBS_072       | <i>hare paerua</i> | fragment    | no        | yes                      | yes               | small poro                     | no  | no  | n/a                                    | yes                     |
| LBS_073       | <i>hare paerua</i> | partial     | yes       | yes                      | yes               | no                             | no  | yes—one end   | no                                     | fragmentary             |
| LBS_074       | ? <i>hare nui</i>  | fragmentary | partial   | no evidence              | no                | no                             | no  | n/a   | n/a                                    | no                      |
| LBS_075       | <i>hare paerua</i> | yes         | no        | yes                      | no                | no                             | no  | no record   | no record                              | partial                 |
| LBS_076       | without curb       | no          | no        | no evidence              | no                | no                             | no  | no  | n/a                                    | yes                     |
| LBS_077       | <i>hare paerua</i> | yes         | no        | yes                      | yes               | single small poro              | no  | possibly—one end  | possibly                               | partial                 |
| LBS_078       | <i>hare paerua</i> | partial     | partial   | gap in curb              | no                | no                             | no  | yes—one end   | yes—right end                          | yes                     |
| LBS_079       | <i>hare paerua</i> | fragmentary | partial   | no evidence              | no                | no                             | no  | no  | n/a                                    | fragmentary             |
| LBS_080       | <i>hare paerua</i> | yes         | yes       | gap in curb              | no                | fragmentary                    | yes—right end ( <i>pu</i> )               | yes—one end   | yes                                    | partial                 |
| LBS_081       | <i>hare paerua</i> | partial     | partial   | gap in curb              | no                | no                             | shallow so may not be functional)         | no  | n/a                                    | yes                     |



| LOC survey no | House type        | Front curb       | Rear curb         | Doorway in side of house | Doorway structure | Entrance paved | Ends with <i>pu paeŋa</i> or <i>pini</i> | Extension of curb fashioned from stones without <i>pu</i> | End closed by stones without <i>pu</i> | Pavement    |
|---------------|-------------------|------------------|-------------------|--------------------------|-------------------|----------------|--|---|--|-------------|
| LBS_082       | <i>hare paeŋa</i> | partial          | partial           | no evidence              | no                | no             | no                                       | yes—one end   | no                                     | partial     |
| LBS_083       | <i>hare paeŋa</i> | yes              | yes               | yes                      | no                | no             | no                                       | yes   | no                                     | partial     |
| LBS_084       | <i>hare paeŋa</i> | fragmentary      | partial           | no evidence              | no                | no             | no                                       | yes   | no                                     | no          |
| LBS_085       | <i>hare paeŋa</i> | yes              | yes               | yes                      | yes               | small poro     | no                                       | yes—one end   | no                                     | yes         |
| LBS_086       | <i>hare paeŋa</i> | yes              | yes               | yes                      | yes               | small poro     | no                                       | yes—one end   | no                                     | fragmentary |
| LBS_087       | <i>hare paeŋa</i> | yes              | yes               | yes                      | yes               | no record      | no                                       | yes—both ends   | yes                                    | none        |
| LBS_088       | <i>hare paeŋa</i> | no               | partial           | possible                 | no                | possibly       | no                                       | no  | n/a                                    | fragmentary |
| LBS_089       | <i>hare paeŋa</i> | fragment         | partial           | no evidence              | no                | no             | no                                       | yes—one end   | no                                     | partial     |
| LBS_090       | <i>hare paeŋa</i> | yes              | partially visible | gap in kerb              | yes               | no record      | no                                       | no  | n/a                                    | fragmentary |
| LBS_091       | <i>hare paeŋa</i> | yes              | yes               | yes                      | yes               | no record      | no                                       | no  | n/a                                    | partial     |
| LBS_092       | <i>hare paeŋa</i> | very fragmentary | yes               | no evidence              | no                | no record      | no                                       | yes—both ends   | no record                              | partial     |
| LBS_093       | <i>hare paeŋa</i> | no record        | no record         | no record                | no record         | no record      | no record                                | no record   | no record                              | yes         |
| LBS_094       | <i>hare paeŋa</i> | partial          | partial           | yes                      | no                | no record      | no                                       | yes—one end   | no                                     | no          |
| LBS_095       | <i>hare paeŋa</i> | yes              | partial           | yes                      | yes               | small poro     | no                                       | no  | n/a                                    | yes         |
| LBS_096       | <i>hare paeŋa</i> | no record        | no record         | yes                      | yes               | no record      | no record                                | no record   | no record                              | no record   |
| LBS_097       | <i>hare paeŋa</i> | no record        | no record         | no record                | no record         | no record      | no record                                | no record   | no record                              | yes         |
| LBS_098       | ? <i>hare nui</i> | partial          | partial           | yes                      | no                | no record      | no                                       | yes—both ends   | no record                              | yes         |
| LBS_099       | <i>hare paeŋa</i> | yes              | yes               | yes (off centre)         | no                | no evidence    | yes—right/E end                          | yes—both ends   | n/a                                    | partial     |
| LBS_100       | <i>hare paeŋa</i> | yes              | yes               | yes                      | partial           | probably       | no                                       | no  | n/a                                    | partial     |
| LBS_101       | <i>hare paeŋa</i> | yes              | yes               | yes                      | no                | small poro     | no                                       | no  | n/a                                    | partial     |
| LBS_102       | <i>hare paeŋa</i> | yes              | yes               | yes                      | yes               | no record      | yes                                      | no  | n/a                                    | yes         |
| LBS_103       | <i>hare paeŋa</i> | yes              | yes               | yes                      | yes               | small poro     | no                                       | possible—one end  | no                                     | no          |
| LBS_104       | <i>hare paeŋa</i> | fragmentary      | partial           | no evidence              | no                | no             | no                                       | no  | n/a                                    | partial     |

| LOC<br>survey<br>no | House<br>type      | Front<br>curb | Rear<br>curb | Doorway in side of<br>house | Doorway<br>structure | Entrance<br>paved | Ends with<br><i>pu paerua</i> or<br>pini | Extension of<br>curb fashioned<br>from stones<br>without <i>pu</i> | End closed<br>by stones<br>without <i>pu</i> | Pavement |
|---------------------|--------------------|---------------|--------------|-----------------------------|----------------------|-------------------|--|--|--|----------|
| LBS_105             | <i>hare paerua</i> | no            | partial      | no evidence                 | no                   | no record         | no                                       | no   | n/a  | partial  |
| LBS_106             | <i>hare paerua</i> | partial       | partial      | yes                         | partial              | small poro        | no                                       | no   | n/a  | partial  |
| LBS_107             | <i>hare paerua</i> | partial       | partial      | no evidence                 | no                   | no                | no                                       | no   | n/a  | partial  |
| LBS_108             | <i>hare paerua</i> | partial       | fragment     | gap in curb                 | no                   | no                | no                                       | no   | n/a  | partial  |
| LBS_109             | <i>hare paerua</i> | partial       | no           | gap in curb                 | no                   | small poro        | no                                       | no   | n/a  | partial  |
| LBS_110             | <i>hare paerua</i> | yes           | yes          | yes                         | no                   | unclear           | no                                       | yes—one end  | no   | partial  |
| LBS_111             | <i>hare paerua</i> | yes           | no           | yes                         | yes                  | poro              | no                                       | no   | n/a  | partial  |
| LBS_112             | without curb       | no            | no           | yes                         | no                   | no                | no                                       | no   | n/a  | partial  |
| LBS_113             | without curb       | no            | no           | no evidence                 | no                   | no                | no                                       | no   | n/a  | yes      |
| LBS_114             | <i>hare paerua</i> | yes           | yes          | no evidence                 | no                   | no                | yes—part<br>left/E end                   | yes—one end  | nearly                                       | yes      |
| LBS_115             | <i>hare paerua</i> | no            | partial      | no evidence                 | no                   | no                | no                                       | no   | n/a  | no       |



**Appendix 5: *hare paenga* materiality**

| LOC survey no | Big backstone (m)                                 | Trend of big stones towards centre | Minimum no of stone types | Stone types  | Location of red scoria    | Minimum number of reuses |
|---------------|---|------------------------------------|---------------------------|--|---------------------------|--------------------------|
| LBS_002       | no  | weak                               | 2                         | NW coast-type and unidentified vesicular   | n/a                       | 5                        |
| LBS_003       | 1.75  | yes                                | 4–5                       | Terevaka-type, red scoria, local vesicular and non-vesicular lava, unmatched fine vesicular lava | peripheral                | 4                        |
| LBS_004       | large gap in rear curb opposite possible entrance | no record                          | no record                 | no record  | n/a                       | no record                |
| LBS_005       | no evidence                                       | no record                          | 3                         | Terevaka-type, 2 local lavas   | n/a                       | 3                        |
| LBS_006       | no  | weak                               | 2–3                       | no record  | n/a                       | 4                        |
| LBS_007       | 1.7 (slightly off centre)                         | yes                                | 5                         | red scoria, Puna Pau red scoria  | peripheral, pavement curb | 10                       |
| LBS_008       | pair  | weak                               | 5                         | Terevaka-type, Puna Pau red scoria, local vesicular & phenocrystalline lava                      | pavement curb             | 11                       |
| LBS_009       | 2.8   | weak                               | 2                         | Puna Pau red scoria  | pavement curb             | 10                       |
| LBS_010       | no  | no                                 | 2                         | local lava   | n/a                       | 7                        |
| LBS_011       | probably (2.93)                                   | yes (to rear)                      | 3                         | possible Terevaka-type, local non-vesicular lava, unmatched vesicular lava                       | n/a                       | 1 possible               |
| LBS_012       | 1.74  | yes                                | 2–3                       | includes Puna Pau red scoria   | pavement                  | 4                        |
| LBS_013       | no  | yes                                | 4                         | Terevaka-type with and without vesicles, local crystalline lava (NW coast-type), unmatched lava  | n/a                       | 7                        |
| LBS_014       | no evidence                                       | no                                 | 3                         | Terevaka-type, local lava & unmatched finely vesicular lava                                      | n/a                       | 3                        |
| LBS_015       | no  | weak                               | 3–4                       | possible Terevaka-type, possible NW coast-type, local lava                                       | n/a                       | 4                        |
| LBS_016       | 1.83 gap  | weak                               | 3–4                       | possible Terevaka-type, possible NW coast-type, local lava                                       | n/a                       | 4                        |
| LBS_017       | no  | no                                 | 1                         | local lava   | n/a                       | 1                        |
| LBS_018       | no evidence                                       | no evidence                        | 2                         | no record  | n/a                       | 2                        |
| LBS_019       | 1.1   | weak                               | 2 (at least)              | includes Puna Pau red scoria   | peripheral                | 10                       |
| LBS_020       | 1.5   | unknown                            | 2–3                       | Terevaka-type, local lava, non-local vesicular lava  | n/a                       | 3                        |
| LBS_021       | 2.26  | yes                                | no record                 | no record  | n/a                       | 5–6                      |
| LBS_022       | 2.02  | yes                                | 3                         | non-vesicular Terevaka-type, local crystalline lava (NW coast-type)                              | n/a                       | 8                        |

| LOC survey no | Big backstone (m)                      | Trend of big stones towards centre | Minimum no of stone types | Stone types   | Location of red scoria | Minimum number of reuses |
|---------------|--|------------------------------------|---------------------------|---|------------------------|--------------------------|
| LBS_023       | no evidence                            | no                                 | no record                 | no record   | n/a                    | no record                |
| LBS_024       | no                                     | yes                                | 4                         | vesicular and non vesicular Terevaka-type, unmatched non-vesicular lava, unknown                          | n/a                    | 7                        |
| LBS_025       | 1.98                                   | yes                                | 2                         | includes Terevaka-type non-vesicular Terevaka-type, unmatched vesicular lava                              | n/a                    | 7                        |
| LBS_026       | possibly                               | no                                 | 2                         |   | n/a                    | no evidence              |
| LBS_027       | no                                     | no                                 | no record                 | no record   | n/a                    | 3                        |
| LBS_028       | 2.89                                   | yes                                | 3                         | Terevaka-type with and without vesicles, local crystalline lava (NW coast-type)                           | n/a                    | 6–7                      |
| LBS_029       | no                                     | weak                               | ?3–4                      | Terevaka-type with and without vesicles, local crystalline lava (NW coast-type), unmatched vesicular lava | n/a                    | no evidence              |
| LBS_030       | no                                     | no                                 | no record                 | no record   | n/a                    | >1                       |
| LBS_031       | c. 2.7                                 | yes                                | no record                 | no record   | n/a                    | 1                        |
| LBS_032       | 1.71                                   | weak                               | 2                         | Terevaka-type, local crystalline lava (NW coast-type)   | n/a                    | 8                        |
| LBS_033       | no                                     | weak                               | 2–3                       | Terevaka-type with and without vesicles, local crystalline lava (NW coast-type)                           | n/a                    | 15                       |
| LBS_034       | 2.7 gap in rear curb opposite entrance | yes                                | 2                         | near local Terevaka-type, (finer) local crystalline lava  | n/a                    | 2                        |
| LBS_035       | no evidence                            | yes                                | 2                         | near local Terevaka-type without vesicles, which occurs naturally nearby, if not actually on site         | n/a                    | 3                        |
| LBS_037       | no evidence                            | possibly                           | no record                 | no record   | n/a                    | no record                |
| LBS_040       | no                                     | yes                                | 1                         | near local Terevaka-type  | n/a                    | 6                        |
| LBS_041       | 2.22                                   | yes                                | 2                         | vesicular and non-vesicular variants of local crystalline lava  | n/a                    | no record                |
| LBS_042       | 3 big stones                           | yes                                | 2                         | vesicular and not vesicular variants of local crystalline lava  | n/a                    | 8                        |
| LBS_043       | 1.46 (slightly off-centre)             | yes                                | 3                         | near local Terevaka-type, NW coast-type, local crystalline lava   | n/a                    | 13                       |
| LBS_044       | no clear evidence                      | weak                               | four                      | local and non-local Terevaka-type, unmatched tabular lava   | n/a                    | 3                        |
| LBS_045       | no                                     | weak                               | 3                         | no record   | n/a                    | 9                        |
| LBS_046       | no evidence                            | no                                 | no record                 | no record   | n/a                    | 0                        |
| LBS_047       | no evidence                            | no evidence                        | no record                 | no record   | n/a                    | 1                        |



| LOC survey no | Big backstone (m)                | Trend of big stones towards centre | Minimum no of stone types | Stone types   | Location of red scoria   | Minimum number of reuses |
|---------------|----------------------------------|------------------------------------|---------------------------|---|--------------------------|--------------------------|
| LBS_048       | 2.43                             | yes                                | 3                         | Terevaka-type, coarse local vesicular crystalline lava, unmatched coarse vesicular lava                                 | n/a                      | 14                       |
| LBS_049       | unknown                          | none                               | no record                 | no record   | n/a                      | 1                        |
| LBS_050       | 1.15                             | weak                               | 2                         | vesicular lava, unmatched red scoria  | no record                | 9                        |
| LBS_051       | probably (2.89)                  | weak                               | 2                         | Terevaka-type (mostly), unmatched crystalline lava  | n/a                      | 0                        |
| LBS_052       | no                               | no                                 | 4                         | Terevaka-type, probable Puna Pau red scoria, 2 local vesicular lavas  | 4th stone from entrance  | 5                        |
| LBS_053       | no                               | weak                               | 3                         | Terevaka type, unmatched finer lava   | n/a                      | 11                       |
| LBS_054       | possible                         | yes                                | no record                 | no record   | n/a                      | 4–5                      |
| LBS_055       | 2.38                             | yes                                | 2                         | non-vesicular and highly vesicular (1 stone only) lava  | n/a                      | 0                        |
| LBS_056       | no (1.66)                        | yes                                | 1                         | local coarse vesicular lava   | n/a                      | 7                        |
| LBS_057       | 1.8                              | yes                                | 3 or 4                    | 1–2 non-local phenocrystalline lavas, two local lavas   | n/a                      | 4–6                      |
| LBS_058       | no                               | weak                               | 3                         | possible Terevaka-type, local lava  | n/a                      | 4–5                      |
| LBS_059       | 1.68                             | weak                               | 3                         | no record   | n/a                      | 2                        |
| LBS_060       | probable pair                    | yes                                | unknown                   | no record   | n/a                      | unknown                  |
| LBS_061       | probably (no pu)                 | unknown                            | 1                         | non-vesicular lava backstone  | n/a                      | unknown                  |
| LBS_062       | no                               | no                                 | 2                         | 2 non-local lavas   | n/a                      | 5                        |
| LBS_063       | no                               | weak to rear                       | 3–4                       | Non-local sparsely vesicular phenocrystalline lava, non-local vesicular lava, unmatched smooth orange crystalline stone | n/a                      | 5–6                      |
| LBS_064       | no                               | no                                 | 4                         | Non-local, including orange type referred to under Vinapu 2   | n/a                      | unknown                  |
| LBS_065       | 1.28                             | no                                 | 2–3                       | local very dark red scoria, probably local lava   | peripheral               | 4                        |
| LBS_066       | possibly (somewhere near middle) | weak                               | 4                         | local very dark red scoria, local vesicular lava, near local non-crystalline finely vesicular tabular                   | close to centre of house | 2                        |
| LBS_069       | no evidence                      | no evidence                        | 1                         | non-local lava  | n/a                      | no evidence              |
| LBS_070       | no                               | no evidence                        | 4                         | local red scoria, 2 unmatched lavas   | no record                | 4                        |
| LBS_071       | yes                              | very weak                          | 3 or 4                    | local red scoria, unmatched very vesicular crystalline lava, unmatched non-vesicular lava                               | peripheral               | 4                        |
| LBS_072       | no evidence                      | no evidence                        | possibly 3                | Terevaka-type and local lava in vicinity  | n/a                      | no evidence              |

| LOC survey no | Big backstone (m)  | Trend of big stones towards centre | Minimum no of stone types | Stone types   | Location of red scoria              | Minimum number of reuses |
|---------------|--|------------------------------------|---------------------------|---|-------------------------------------|--------------------------|
| LBS_073       | 3.07   | possible                           | 3                         | Terevaka-type, vesicular lava without obvious phenocrysts   | n/a                                 | 4                        |
| LBS_074       | probably (impossible to identify centre of back with confidence) | weak                               | 3                         | local red scoria, unmatched lava  | forms significant part of rear curb | 0                        |
| LBS_075       | no evidence  | no                                 | 3                         | unmatched vesicular lava  | n/a                                 | 5                        |
| LBS_077       | no evidence  | no                                 | 2                         | local red scoria, unmatched lava  | peripheral                          | 4                        |
| LBS_078       | 1.95   | no                                 | 2                         | local red scoria, unmatched lava  | peripheral                          | 2                        |
| LBS_079       | no evidence  | no evidence                        | 2                         | Terevaka-type, unmatched vesicular lava   | n/a                                 | no record                |
| LBS_080       | 1.4  | weak                               | 4–5                       | Terevaka-type, local dark red scoria, 2 ?<br>local vesicular lavas, 1<br>unmatched non-vesicular lava                     | peripheral                          | 9                        |
| LBS_081       | 1.85 wide gap slightly off-centre                                | no                                 | 4–5                       | weathered Terevaka-type, local red scoria, local coarse vesicular lava, unmatched finely vesicular and non-vesicular lava | peripheral                          | 6                        |
| LBS_082       | unknown  | yes                                | 5–6                       | Terevaka-type (near middle at rear), displaced Rano Raraku tuff, local vesicular and laminated lava                       | n/a                                 | 7                        |
| LBS_083       | pair (1.98 & 1.33)   | yes                                | 4–5                       | Terevaka-type, NW coast-type, local red scoria, 2 local vesicular lavas   | peripheral                          | 10                       |
| LBS_084       | no evidence  | no evidence                        | 1–2                       | Terevaka-type, local vesicular lava   | n/a                                 | no evidence              |
| LBS_085       | no   | yes                                | 2–3                       | non-local phenocrystalline lava   | n/a                                 | 6–7                      |
| LBS_086       | pair—biggest two of a group of very small stones                 | yes                                | 4                         | Terevaka-type, possible NW coast-type, near local red scoria, unmatched coarse vesicular                                  | peripheral                          | 8                        |
| LBS_087       | 1.30   | weak                               | 4                         | Terevaka, local red scoria, unmatched lava  | peripheral                          | 6                        |
| LBS_088       | probably (2.69)  | no evidence                        | 1                         | probably local vesicular lava   | n/a                                 | 1                        |
| LBS_089       | unknown (biggest stone 1.24)                                     | unknown                            | 1                         | probably local vesicular lava   | n/a                                 | 1                        |
| LBS_090       | no evidence  | yes (in front curb)                | 2–3                       | Terevaka-type (7); local coarse vesicular lava, unmatched finer vesicular lava  | n/a                                 | 2–4                      |
| LBS_091       | 1.72   | yes                                | 3                         | Terevaka-type, local red scoria, local vesicular lava   |                                     | 7–8                      |



| LOC survey no | Big backstone (m)                | Trend of big stones towards centre | Minimum no of stone types | Stone types  | Location of red scoria  | Minimum number of reuses |
|---------------|----------------------------------|------------------------------------|---------------------------|--|---|--------------------------|
| LBS_092       | 1.6 gap near centre of rear curb | unknown                            | 5                         | Terevaka-type, local red scoria, local vesicular and non-vesicular lava, unmatched finely vesicular lava   | peripheral  | 2                        |
| LBS_094       | no evidence                      | no evidence                        | 3                         | Terevaka-type, local red scoria, unmatched coarse vesicular and poorly pre-crystallized lava   | no record but incorporates a reused passage stone in red scoria | 5–6                      |
| LBS_095       | possibly (1.5)                   | yes (right front only)             | 3                         | local red scoria, unmatched heavily vesicular lava, unmatched less vesicular and more phenocrystalline lava  | no record   | 3                        |
| LBS_098       | no (but big)                     | yes (weak to rear)                 | 4                         | local red scoria, Rano Raraku tuff, 2 different unmatched vesicular lavas  | no record   | 0                        |
| LBS_099       | 1.37                             | yes                                | 5–6                       | Terevaka-type, local red scoria, Rano Raraku tuff, local finely vesicular, finely crystalline and non-vesicular lava, and unmatched vesicular lava | peripheral  | 5                        |
| LBS_100       | 2.4                              | weak                               | 3                         | Terevaka-type, NW coast-type non-vesicular crystalline, possible local   | n/a   | 3                        |
| LBS_101       | 1.06                             | possibly                           | 2–3                       | (?) local red scoria, Puna Pau scoria, not immediately local phenocrystalline lava   | dark red scoria threshold; both in curb                         | 5                        |
| LBS_102       | probably                         | weak                               | 1                         | non-local lava   | n/a   | no record                |
| LBS_103       | 1.84                             | yes                                | 3                         | Terevaka-type, local vesicular lava  | n/a   | 5–6                      |
| LBS_104       | no evidence                      | no evidence                        | no record                 | no record  | n/a   | no evidence              |
| LBS_105       | probably (4.15)                  | no evidence                        | 2                         | non-local vesicular and non-vesicular (the long stone) lava  | n/a   | 1                        |
| LBS_106       | no record                        | no record                          | 1                         | local lava   | n/a   | 3                        |
| LBS_107       | unknown                          | probably not                       | 2                         | possible Terevaka-type (one stone at front), local vesicular lava  | n/a   | 3                        |
| LBS_108       | unknown                          | weak                               | 2                         | no record  | n/a   | 2                        |
| LBS_110       | pair                             | yes                                | 3                         | Terevaka-type with and without vesicles, local lava  | n/a   | 4                        |
| LBS_114       | 0.85                             | weak to rear                       | no record                 | no record  | n/a   | 9                        |
| LBS_115       | no evidence                      | no evidence                        | 1                         | no record  | n/a   | no evidence              |

**Appendix 6: *pu paēŋa* reuse**

| LOC survey no | broken in run | Bad fit             | 1/2 <i>pu</i> | Passage stone in curb | <i>Pu</i> density | <i>Pu paēŋa</i> in threshold | Vestigial <i>pu</i> | Other  |
|---------------|---------------|---------------------|---------------|-----------------------|-------------------|------------------------------|---------------------|--|
| LBS_002       | yes           | yes                 | yes           |                       | sparse            | n/a                          |                     |  |
| LBS_003       |               | yes                 |               |                       | sparse            |                              |                     |  |
| LBS_004       |               |                     |               |                       |                   |                              |                     |  |
| LBS_005       |               | yes                 |               |                       |                   | n/a                          |                     |  |
| LBS_006       | yes           | yes                 | yes           |                       | variable          | yes                          | yes                 | <i>pu paēŋa</i> in pavement curb   |
| LBS_007       | yes           | yes                 | yes           |                       | dense             | yes                          |                     |  |
| LBS_008       | yes           | yes                 | yes           |                       | variable–dense    |                              |                     | <i>pu paēŋa</i> in entrance passage & pavement curb, and for entrance pillar |
| LBS_009       | yes           |                     | yes           | yes                   | variable          | yes                          |                     | <i>pu paēŋa</i> in pavement curb   |
| LBS_010       | yes           | yes                 | yes           | yes                   | dense             |                              |                     |  |
| LBS_011       |               | yes                 |               |                       | sparse            |                              |                     |  |
| LBS_012       |               |                     |               | yes                   | variable          |                              | yes                 | Puna Pau red scoria <i>pu paēŋa</i> in pavement                              |
| LBS_013       | yes           | yes                 | yes           |                       | dense             |                              |                     |  |
| LBS_014       |               | yes                 |               |                       | variable          |                              |                     |  |
| LBS_015       | yes           | yes                 | yes           |                       | sparse–dense      |                              |                     |  |
| LBS_016       | yes           | yes                 |               |                       | sparse            | possibly                     |                     |  |
| LBS_017       |               | yes ( <i>pini</i> ) |               |                       | sparse            |                              |                     |  |
| LBS_018       |               | yes                 |               |                       | sparse            |                              |                     |  |
| LBS_019       | yes           | yes                 | yes           | yes                   | variable–dense    | yes                          | yes                 |  |
| LBS_020       | yes           | yes                 | yes           |                       | dense             |                              |                     |  |
| LBS_021       |               | yes                 |               | yes                   | variable          |                              |                     | <i>pu paēŋa</i> in entrance passage  |
| LBS_022       | yes           | yes                 | yes           | yes                   | variable          | yes                          |                     |  |
| LBS_023       |               |                     |               |                       | variable          |                              |                     |  |
| LBS_024       |               | yes                 | yes           | yes                   | dense             |                              | yes                 | <i>pu paēŋa</i> in pavement curb   |
| LBS_025       | yes           | yes                 | yes           | yes                   | dense             | yes                          | yes                 |  |
| LBS_026       | no evidence   | no evidence         | no evidence   | no evidence           |                   | no evidence                  | no evidence         |  |
| LBS_027       |               | yes                 |               |                       | variable          |                              |                     |  |
| LBS_028       | yes           | yes                 | yes           |                       | variable          | n/a                          | yes                 |  |
| LBS_029       | no evidence   | no evidence         | no evidence   | no evidence           | dense             | no evidence                  | no evidence         |  |



| LOC survey no | broken in run | Bad fit     | 1/2 <i>pu</i> | Passage stone in curb | <i>Pu</i> density       | <i>Pu paenja</i> in threshold | Vestigial <i>pu</i> | Other                                |
|---------------|---------------|-------------|---------------|-----------------------|-------------------------|-------------------------------|---------------------|--------------------------------------|
| LBS_030       |               |             |               |                       | dense                   |                               | yes                 |                                      |
| LBS_031       |               |             |               | yes                   | dense                   |                               |                     |                                      |
| LBS_032       | yes           |             | yes           |                       |                         |                               |                     |                                      |
| LBS_033       | yes           | yes         | yes           | yes                   | dense                   | yes                           | yes                 | <i>pu paenja</i> in pavement curb    |
| LBS_034       | yes           |             |               |                       | dense                   |                               |                     |                                      |
| LBS_035       | yes           |             | yes           |                       | sparse                  |                               | yes                 |                                      |
| LBS_037       |               |             |               |                       |                         |                               |                     |                                      |
| LBS_040       | yes           | yes         | yes           |                       |                         | yes                           | yes                 | <i>pu paenja</i> in entrance passage |
| LBS_041       |               |             |               |                       | sparse                  |                               |                     |                                      |
| LBS_042       | yes           | yes         | yes           | yes                   | variable                |                               |                     |                                      |
| LBS_043       | yes           | yes         | yes           | yes                   | sparse–variable         | yes                           |                     | <i>pini</i> in curb                  |
| LBS_044       | yes           | yes         |               |                       | dense–sparse            | n/a                           |                     |                                      |
| LBS_045       | yes           | yes         | yes           |                       | dense                   | yes                           |                     |                                      |
| LBS_046       |               |             |               |                       | variable                |                               |                     |                                      |
| LBS_047       | yes           |             |               |                       | sparse                  |                               |                     |                                      |
| LBS_048       | yes           |             | yes           |                       | sparse–variable         | yes                           | yes                 |                                      |
| LBS_049       |               | yes         |               |                       | sparse                  |                               |                     |                                      |
| LBS_050       |               |             | yes           | yes                   | dense                   |                               |                     | passage stone for threshold          |
| LBS_051       |               |             |               |                       | sparse–moderately dense |                               |                     |                                      |
| LBS_052       | yes           | yes         |               |                       | moderate–dense          |                               |                     |                                      |
| LBS_053       | yes           | yes         |               | yes                   | dense                   |                               |                     |                                      |
| LBS_054       | yes           |             |               | yes                   |                         |                               | yes                 | passage stone for threshold          |
| LBS_055       |               |             |               |                       | sparse                  |                               |                     |                                      |
| LBS_056       | yes           | yes         | yes           | yes                   | dense                   |                               | yes                 | passage stone in threshold           |
| LBS_057       |               | yes         | yes           |                       | variable                | yes                           |                     | <i>pu paenja</i> in entrance passage |
| LBS_058       |               | yes         | yes           |                       | variable–dense          |                               |                     |                                      |
| LBS_059       |               | yes         |               |                       | dense                   | yes                           |                     |                                      |
| LBS_060       | no evidence   | no evidence | no evidence   | no evidence           | variable                | no evidence                   | no evidence         |                                      |
| LBS_061       | no evidence   | no evidence | no evidence   | no evidence           | variable                | no evidence                   | no evidence         |                                      |
| LBS_062       | yes           | yes         | yes           |                       | variable                | n/a                           |                     |                                      |

| LOC survey no | broken in run | Bad fit     | 1/2 <i>pu</i> | Passage stone in curb | <i>Pu</i> density   | <i>Pu paerā</i> in threshold | Vestigial <i>pu</i> | Other                               |
|---------------|---------------|-------------|---------------|-----------------------|---------------------|------------------------------|---------------------|-------------------------------------|
| LBS_063       |               | yes         | yes           |                       | dense               | yes                          |                     |                                     |
| LBS_064       | no evidence   | no evidence | no evidence   | no evidence           | sparse              | no evidence                  | no evidence         |                                     |
| LBS_065       |               | yes         | yes           | yes                   | dense               |                              | yes                 |                                     |
| LBS_066       | yes           |             |               |                       | sparse              |                              |                     |                                     |
| LBS_069       | no evidence   | no evidence | no evidence   | no evidence           | no evidence         | no evidence                  | no evidence         | no evidence                         |
| LBS_070       | yes           | yes         |               | yes                   |                     |                              |                     |                                     |
| LBS_071       |               | yes         | yes           | yes                   | dense               | unknown                      | yes                 |                                     |
| LBS_072       | no evidence   | no evidence | no evidence   | no evidence           | variable            | no evidence                  | no evidence         |                                     |
| LBS_073       |               | yes         | yes           |                       | variable            | n/a                          |                     |                                     |
| LBS_074       |               |             |               |                       | n/a                 |                              |                     |                                     |
| LBS_075       |               | yes         | yes           |                       | dense               |                              |                     |                                     |
| LBS_076       | n/a           | n/a         | n/a           | n/a                   | n/a                 | n/a                          |                     | <i>pu paerā</i> in pavement curb    |
| LBS_077       |               | yes         |               |                       | dense               |                              |                     | <i>pu paerā</i> in entrance passage |
| LBS_078       | yes           | yes         |               | yes                   | variable            |                              |                     |                                     |
| LBS_079       |               |             |               |                       |                     |                              |                     |                                     |
| LBS_080       | yes           | yes         |               |                       | variable            |                              |                     |                                     |
| LBS_081       | yes           | several     |               | yes                   | dense               |                              |                     |                                     |
| LBS_082       | yes           | yes         |               |                       | variable            |                              |                     |                                     |
| LBS_083       | yes           | 0           | yes           | yes                   | variable            | yes                          | many                | 0                                   |
| LBS_084       | no evidence   | no evidence | no evidence   | no evidence           | dense where visible | no evidence                  | no evidence         |                                     |
| LBS_085       |               | yes         | 0             | yes                   | dense               |                              |                     | <i>pu paerā</i> in entrance passage |
| LBS_086       | yes           |             | yes           | yes                   | dense               |                              |                     |                                     |
| LBS_087       | yes           |             |               | yes                   | dense to sparse     |                              |                     |                                     |
| LBS_088       |               | yes         |               |                       | variable            |                              |                     |                                     |
| LBS_089       |               |             |               |                       | variable            |                              | yes                 |                                     |
| LBS_090       | yes           |             |               |                       | dense patches       |                              |                     |                                     |
| LBS_091       | yes           | yes         |               | yes                   | variable            | yes                          | yes                 | break in run of passage             |
| LBS_092       | yes           | yes         |               |                       |                     |                              |                     |                                     |
| LBS_093       | n/a           | n/a         | n/a           | n/a                   |                     | n/a                          | n/a                 |                                     |
| LBS_094       | yes           |             |               | yes                   | dense               |                              |                     |                                     |
| LBS_095       | yes           | yes         |               |                       | sparse              |                              |                     |                                     |
| LBS_096       |               |             |               |                       |                     |                              |                     |                                     |
| LBS_097       |               |             |               |                       |                     |                              |                     |                                     |
| LBS_098       |               |             |               |                       | sparse              |                              |                     |                                     |



| LOC survey no | broken in run | Bad fit     | 1/2 <i>pu</i> | Passage stone in curb | <i>Pu</i> density     | <i>Pu paer̃a</i> in threshold | Vestigial <i>pu</i> | Other                             |
|---------------|---------------|-------------|---------------|-----------------------|-----------------------|-------------------------------|---------------------|-----------------------------------|
| LBS_099       | yes           | yes         | yes           |                       | variable–dense        |                               |                     | passage stone for threshold       |
| LBS_100       | yes           | yes         | yes           |                       | variable              | yes                           | yes                 | double <i>pu</i>                  |
| LBS_101       | yes           | yes         | yes           | yes                   | variable              |                               |                     |                                   |
| LBS_102       |               | yes         |               |                       | variable              |                               |                     |                                   |
| LBS_103       | yes           | yes         | yes           | yes                   | dense                 | yes                           |                     |                                   |
| LBS_104       | no evidence   | no evidence | no evidence   | no evidence           | insufficient evidence | no evidence                   | no evidence         |                                   |
| LBS_105       |               | yes         |               |                       | variable              |                               |                     |                                   |
| LBS_106       |               | yes         | yes           |                       | variable              | yes                           |                     |                                   |
| LBS_107       |               | yes         |               |                       | variable              |                               | yes                 |                                   |
| LBS_108       |               | yes         |               |                       | variable              |                               |                     |                                   |
| LBS_109       |               |             |               |                       | variable–dense        |                               |                     |                                   |
| LBS_110       | yes           | yes         | yes           |                       | variable              | yes                           | no                  |                                   |
| LBS_111       | yes           |             | yes           |                       | sparse–variable       |                               | 0                   | <i>pu paer̃a</i> in pavement curb |
| LBS_112       |               |             |               |                       | n/a                   |                               |                     |                                   |
| LBS_113       |               |             |               |                       |                       |                               |                     |                                   |
| LBS_114       | yes           | yes         | yes           |                       | variable              | n/a                           | yes                 |                                   |
| LBS_115       | no evidence   | no evidence | no evidence   | no evidence           | dense                 | no evidence                   | no evidence         |                                   |

**Appendix 7: hare paenga orientation**

| LOC survey no | Proximate <i>ahu</i> | other associations     | Orientation  |
|---------------|----------------------|------------------------|--|
| LBS_001       | Ko te Riku           | Tahai complex          | paved “slipway” to sea and Ahu Tahai—not at more proximate Ahu Ko te Riku                        |
| LBS_002       | Te Peu               |                        | <i>ahu</i>   |
| LBS_003       | Te Peu               |                        | <i>ahu</i>   |
| LBS_004       | Te Peu               |                        | <i>ahu</i>   |
| LBS_005       | Te Peu               |                        | <i>ahu</i>   |
| LBS_006       | Te Peu               |                        | between <i>ahu</i> and crematoria to left—not at <i>ahu</i>                                      |
| LBS_007       | Te Peu               |                        | left wing of <i>ahu</i>  |
| LBS_008       | Te Peu               |                        | right end of <i>ahu</i>  |
| LBS_009       | Te Peu               |                        | just right (NE) of <i>ahu</i> —not at <i>ahu</i>   |
| LBS_010       | Te Peu               |                        | diagonally towards sea <i>and</i> away from barely visible <i>ahu</i>                            |
| LBS_011       | Te Nui               | upslope of Ahu Te Nui  | <i>ahu</i>   |
| LBS_012       | no                   |                        | along coast to Rano Kau  |
| LBS_013       | no                   |                        | sea  |
| LBS_014       | Vai Teka/Akivi       |                        | seaward (towards hidden Ahu Te Peu)—not at either proximate <i>ahu</i>                           |
| LBS_015       | Vai Teka/Akivi       |                        | hillside left (NW) of <i>Ahu Akivi</i> —not at either proximate <i>ahu</i>                       |
| LBS_016       | Vai Teka/Akivi       |                        | <i>Ahu Akivi</i>   |
| LBS_017       | Vai Teka/Akivi       |                        | hillside left (NW) of Ahu Akivi—not at either proximate <i>ahu</i>                               |
| LBS_018       | Vai Teka             |                        | seaward (towards hidden Ahu Te Peu) or the opposite direction—not at either proximate <i>ahu</i> |
| LBS_019       | no                   |                        | down lava flow towards sea   |
| LBS_020       | no                   |                        | down arroyo  |
| LBS_021       | Maitaki to Moa       | “transit” <i>moai</i>  | just to the right of the centre of the <i>ahu</i>  |
| LBS_022       | Maitaki to Moa       |                        | end of right wing of <i>ahu</i>  |
| LBS_023       | Vai Mata             |                        | seaward away from plaza—not at <i>ahu</i>  |
| LBS_024       | Vai Mata             |                        | just left of left wing—not at <i>ahu</i>   |
| LBS_025       | Vai Mata             |                        | end of <i>ahu</i> left wing  |
| LBS_026       | Vai Mata             |                        | along proximate road <i>moai</i> to left wing of <i>ahu</i>                                      |
| LBS_027       | Vai Mata             |                        | well left of <i>ahu</i> and at houses and just left of “transit” <i>moai</i>                     |
| LBS_028       | Vai Mata             |                        | right wing of <i>ahu</i>   |
| LBS_029       | Vai Mata             |                        | right wing of <i>ahu</i>   |
| LBS_030       | Vai Mata             |                        | left (SW) of <i>ahu</i> towards houses to left (SW) of proximate “transit” <i>moai</i>           |
| LBS_031       | Vai Mata             | “transit” <i>moai</i>  | left (SW) of <i>ahu</i>  |
| LBS_032       | Vai Mata             |                        | to the right of <i>ahu</i> —not at <i>ahu</i>  |
| LBS_033       | Vai Mata             |                        | just to right of <i>ahu</i> —not at <i>ahu</i>   |
| LBS_034       | no                   | Omohi rock art complex | seaward across proximate rock art panel  |
| LBS_035       | no                   | Omohi rock art complex | seaward just to right of proximate rock art panel  |
| LBS_036       | no                   |                        | sea  |



| LOC survey no | Proximate <i>ahu</i>                   | other associations                          | Orientation   |
|---------------|--|---|---|
| LBS_037       | Ma 'la 'la (upslope)                   | O'Teo complex                               | probably at bay, away from Ahu Ma 'la 'la (on the hill above) and probably not at Ahu Moai Tuu Paro         |
| LBS_038       | Haŋa Kua Kua/Moai Tuu Paro             | O'Teo complex                               | probably at bay, missing Ahu Moai Tuu Paro  |
| LBS_039       | no                                     |   | sea   |
| LBS_040       | Papa Tekena                            |   | right wind of <i>ahu</i> , just left of proximate <i>umu</i>  |
| LBS_041       | Papa Tekena                            |   | centre of <i>ahu</i>  |
| LBS_042       | Papa Tekena                            |   | <i>ahu</i> main platform  |
| LBS_043       | yes (small rectangular)                |   | downhill to sea to right of <i>ahu</i> and left of proximate birdman panel—not <i>ahu</i>                   |
| LBS_044       | yes (unnamed ruinous)                  |   | at angle along coast, across plaza-like clearing—not at <i>ahu</i>  |
| LBS_045       | no                                     |   | Upslope away from sea at (?) <i>avanga</i>  |
| LBS_046       | Te Ipu Pu                              |   | across plaza (if doorway in that direction)—not <i>ahu</i>  |
| LBS_047       | Te Ipu Pu                              |   | <i>ahu</i>  |
| LBS_048       | Te Ipu Pu                              |   | right (E) end of <i>ahu</i>   |
| LBS_049       | Iho Areo                               | Anakena complex/<br>to rear of Ahu Iho Areo | sea—not <i>ahu</i>  |
| LBS_050       | Nau Nau                                | Anakena Complex                             | across plaza (of Ahu Nau Nau)—not <i>ahu</i>  |
| LBS_051       | Nau Nau                                | Anakena Complex                             | across plaza (of Ahu Nau Nau)—not <i>ahu</i>  |
| LBS_052       | Papa Iti                               |   | at end of <i>hare moa</i> across plaza—not <i>ahu</i>   |
| LBS_053       | Heki'i 1                               | Heki'i complex                              | on bay—not at proximate Heki'i 1 but possibly at Ahu Haŋa Hoonu   |
| LBS_054       | Te a Kava                              |   | across plaza towards hill between Papa Iti and Ovahe—not <i>ahu</i>   |
| LBS_055       | no                                     |   | near ridge and sea beyond   |
| LBS_056       | Haŋa Tau Vaka                          |   | along front of <i>ahu</i> and away from Poike   |
| LBS_057       | Mahatua                                |   | across plaza to right (E) of <i>ahu</i> —not at <i>ahu</i>  |
| LBS_058       | Mahatua                                |   | left (W) wing of <i>ahu</i>   |
| LBS_059       | Mahatua                                |   | left (W) wing of <i>ahu</i> and possible paved "slipway" to sea   |
| LBS_060       | Vinapu complex                         |   | far east of Ahu Vinapu 1  |
| LBS_061       | Vinapu complex                         |   | Wing of Ahu Vinapu 2  |
| LBS_062       | Vinapu complex                         |   | at complex; approximately between Ahu Vinapu 1 and Ahu Vinapu 2   |
| LBS_063       | Vinapu complex                         |   | Ahu Vinapu 1  |
| LBS_064       | Vinapu complex                         |   | Ahu Vinapu 2  |
| LBS_065       | Haŋa Hahave 2                          | "transit" <i>moai</i>                       | across plaza—not <i>ahu</i> or proximate "transit" <i>moai</i>  |
| LBS_066       | Haŋa Hahave 2                          |   | at Rano Kau, across plaza and "transit" <i>moai</i> —not <i>ahu</i>   |
| LBS_067       | between <i>ahu</i> Hua Reva and O'Nero |   | seaward between <i>Ahu</i> Hua Reva and <i>Ahu</i> O'Nero   |
| LBS_068       | between <i>ahu</i> Hua Reva and O'Nero |   | seaward, towards prominent crag with no visible structure between <i>Ahu</i> Hua Reva and <i>Ahu</i> O'Nero |

| LOC survey no | Proximate <i>ahu</i>                    | other associations          | Orientation  |
|---------------|---|-----------------------------|--|
| LBS_069       | Ura Uraŋa te Mahina                     |                             | inland to Muanā Kahurea—not <i>ahu</i>   |
| LBS_070       | Ura Uraŋa te Mahina                     |                             | to right of <i>ahu</i> —not <i>ahu</i>   |
| LBS_071       | Ura Uraŋa te Mahina                     |                             | along the coast to Rano Kau—not <i>ahu</i>   |
| LBS_072       | Akahaŋa                                 |                             | inland of plaza—not <i>ahu</i>   |
| LBS_073       | Akahaŋa                                 |                             | plaza—not <i>ahu</i>   |
| LBS_074       | Akahaŋa                                 |                             | end of <i>ahu</i>  |
| LBS_075       | Akahaŋa                                 |                             | <i>ahu</i>   |
| LBS_076       | Akahaŋa                                 |                             | left wing of <i>ahu</i>  |
| LBS_077       | Akahaŋa                                 |                             | to right of <i>ahu</i> —not <i>at ahu</i>  |
| LBS_078       | Akahaŋa                                 |                             | across rear of plaza—not <i>ahu</i>  |
| LBS_079       | Akahaŋa                                 |                             | bay—not <i>at ahu</i>  |
| LBS_080       | Hoa Anā Vaka o Tua Poi                  | Ara Moai                    | plaza—away from <i>ahu</i>   |
| LBS_081       | Oroi and Hoa Anā Vaka o Tua Poi         | House to rear of <i>ahu</i> | along coast between inland <i>and</i> coastal <i>ahu</i> , just missing Rano Kau—not <i>ahu</i>                |
| LBS_082       | Oroi (NB. house to rear of <i>ahu</i> ) | House to rear of <i>ahu</i> | bay south of <i>ahu</i> —not <i>ahu</i>  |
| LBS_083       | Oroi                                    |                             | away from <i>ahu and</i> plaza at Rano Raraku <i>and</i> Poike   |
| LBS_084       | Oroi                                    |                             | <i>at ahu</i> (assuming door on fragmentary side of house)   |
| LBS_085       | uncertain                               | Ara Moai/Tuta'e complex     | along coast, over rear of hidden inland <i>ahu</i> . Just right (N) of Ahu Oroi and Ahu Hoa Anā Vaka a Tua Poi |
| LBS_086       | no                                      | Ara Moai                    | nowhere—misses “transit” <i>moai</i> to right and possible <i>ahu</i> to left                                  |
| LBS_087       | Tetera                                  | Ara Moai                    | across plaza—not <i>ahu</i>  |
| LBS_088       | no                                      | Ara Moai                    | Ara Moai/seaward beyond local rise   |
| LBS_089       | no                                      | Ara Moai                    | Ara Moai/ seaward beyond local rise  |
| LBS_090       | uncertain                               | Ara Moai                    | invisible Ahu Tongariki—not Rano Raraku, which is just to left, or Poike cliff to the right                    |
| LBS_091       | Te Ihu Hana Maihiku Te Raha             | Hanga Maihiku complex       | across valley—not <i>ahu</i> or clearly visible Rano Raraku  |
| LBS_092       | no                                      | Ara Moai                    | just to right of distant <i>ahu</i> (AMS_037)  |
| LBS_093       | Puna Kape                               | Hanga Maihiku complex       | Ahu Puna Kape  |
| LBS_094       | no                                      | Ara Moai                    | sea—not distant Ahu Tuu Tahi, which is to the left   |
| LBS_095       | Puna Kape                               | Hanga Maihiku complex       | Ahu Puna Kape  |
| LBS_096       | Puna Kape                               | Hanga Maihiku complex       | across plaza—not <i>at ahu</i>   |
| LBS_097       | Puna Kape                               | Hanga Maihiku complex       | across plaza—not <i>at ahu</i>   |
| LBS_098       | Puna Kape                               | Hanga Maihiku complex       | right wing of <i>ahu</i>   |
| LBS_099       | no                                      | Ara Moai                    | possibly distant Ahu Tuu Tahi, and sea   |
| LBS_100       | Puoko                                   | Ara Moai/Rano Raraku        | sea/ at angle along coast—not <i>ahu</i> or Rano Raraku  |
| LBS_101       | Tuu Tahi                                |                             | along coast towards Rano Kau—not <i>at ahu</i>   |
| LBS_102       | no                                      | Rano Raraku                 | out from quarry  |



| LOC survey no | Proximate <i>ahu</i> | other associations    | Orientation  |
|---------------|----------------------|-----------------------|--|
| LBS_103       | One Makihi           |                       | <i>ahu</i>   |
| LBS_104       | Toŋariki             |                       | Poike cliff end—not <i>ahu</i>   |
| LBS_105       | Toŋariki             |                       | <i>ahu</i>   |
| LBS_106       | Toŋariki             |                       | Poike, left of <i>ahu</i> and away from proximate rock art   |
| LBS_107       | Toŋariki             |                       | plaza (right of “transit” <i>moai</i> and left of proximate rock art panel)—not <i>ahu</i>               |
| LBS_108       | Toŋariki             | “transit” <i>moai</i> | just to the right of the supine “transit” <i>moai</i> and to the right (W) of <i>ahu</i> —not <i>ahu</i> |
| LBS_109       | Toŋariki             | “transit” <i>moai</i> | to right of “transit” <i>moai</i>  |
| LBS_110       | Te Pa Hama Te        |                       | just right (w) of <i>ahu</i> —not <i>ahu</i>   |
| LBS_111       | yes                  | Poike escarpment      | bay to rear of Toŋariki—not at proximate <i>ahu</i>  |
| LBS_112       | no                   |                       | downhill   |
| LBS_113       | no                   |                       | downhill   |
| LBS_114       | Poike (Riki Riki)    |                       | at cyst-like structure in plaza— not <i>ahu</i>  |
| LBS_115       | no                   |                       | towards sea across hollow on which settlement focussed   |

**Appendix 8: *hare paenā* destruction**

| LOC survey no | Front curb  | Rear curb           | Doorway structure | Burning           | Evidence for burning                    | Evidence for <i>deliberate</i> slighting                           |
|---------------|-------------|---------------------|-------------------|-------------------|---|--|
| LBS_002       | partial     | yes                 | no                | no                | n/a                                     | yes—single <i>pu paenā</i> displaced locally                       |
| LBS_003       | yes         | yes                 | no                | possibly—exterior | no record                               | yes— <i>pu paenā</i> displaced on site, many but not all downslope |
| LBS_004       | partial     | partial             | no                | no record         | n/a                                     | no   |
| LBS_005       | yes         | partial             | no                | no record         | n/a                                     | no   |
| LBS_006       | yes         | yes                 | yes               | no                | n/a                                     | no   |
| LBS_007       | yes         | yes                 | yes               | yes               | fire-spalling                           | no   |
| LBS_008       | yes         | yes                 | yes               | yes               | fire-cracking, reddening                | no   |
| LBS_009       | yes         | yes                 | partial           | yes               | reddening, fire-spalling                | yes— <i>pu paenā</i> displaced locally                             |
| LBS_010       | yes         | yes                 | partial           | no record         | n/a                                     | no   |
| LBS_011       | fragmentary | yes                 | no                | no evidence       | n/a                                     | no   |
| LBS_012       | yes         | yes                 | yes               | no clear evidence | n/a                                     | no   |
| LBS_013       | partial     | yes                 | yes               | possibly          | reddening                               | no   |
| LBS_014       | partial     | yes                 | no                | no clear evidence | n/a                                     | yes— <i>pu paenā</i> displaced locally                             |
| LBS_015       | partial     | partial—fragmentary | no                | yes               | fire-cracking, reddening, fire-spalling | no   |
| LBS_016       | partial     | partial             | no                | possibly          | fire-cracking (in right wing)           | yes— <i>pu paenā</i> displaced locally                             |
| LBS_017       | no          | yes                 | no evidence       | no                | n/a                                     | no   |
| LBS_018       | partial     | partial             | no                | no                | n/a                                     | no   |
| LBS_019       | yes         | yes                 | no                | not obvious       | n/a                                     | no   |
| LBS_020       | yes         | yes                 | partial           | yes               | fire-cracking, reddening                | no   |
| LBS_021       | yes         | yes                 | yes               | no                | n/a                                     | no   |
| LBS_022       | yes         | yes                 | yes               | possible          | stone adjacent to entrance              | no   |
| LBS_023       | partial     | no                  | no                | no record         | n/a                                     | no   |
| LBS_024       | yes         | yes                 | yes               | yes               | fire-cracking, reddening (throughout)   | no   |
| LBS_025       | yes         | yes                 | yes               | yes               | fire-cracking, reddening (to rear)      | no   |
| LBS_026       | partial     | partial             | no                | no                | n/a                                     | yes— <i>pu paenā</i> displaced into and out of the house           |
| LBS_027       | yes         | yes                 | no                | no record         | n/a                                     | no   |
| LBS_028       | yes         | yes                 | yes               | yes               | fire-cracking, reddening (faint patchy) | no   |



| LOC survey no | Front curb | Rear curb         | Doorway structure | Burning               | Evidence for burning                                  | Evidence for <i>deliberate</i> slighting   |
|---------------|------------|-------------------|-------------------|-----------------------|---|--|
| LBS_029       | yes        | partial           | no                | no                    | n/a   | yes— <i>pu paenja</i> displaced into and out of the house  |
| LBS_030       | yes        | partial           | no                | no record             | n/a   | no   |
| LBS_031       | yes        | yes               | no                | no record             | n/a   | no   |
| LBS_032       | partial    | yes               | probably          | no                    | n/a   | yes— <i>pu paenja</i> displaced inwards, passage stone embedded in the ground in front of the entrance |
| LBS_033       | yes        | yes               | yes               | possibly              | reddening (on left passage stone)                     | no   |
| LBS_034       | yes        | partially visible | yes               | no evidence—too dirty | n/a   | no   |
| LBS_035       | partial    | yes               | yes               | no clear evidence     | n/a   | no   |
| LBS_037       | yes        | fragment          | n/a               | no record             | n/a   | no   |
| LBS_040       | yes        | yes               | yes               | yes                   | fire-cracking, reddening                              | no   |
| LBS_041       | partial    | partial           | no                | yes                   | fire-cracking, reddening (2 isolated patches)         | no   |
| LBS_042       | partial    | yes               | yes               | yes                   | reddening (at entrance)                               | no   |
| LBS_043       | yes        | yes               | no                | yes                   | fire-cracking, reddening                              | no   |
| LBS_044       | partial    | partial           | n/a               | not obviously         | some reddening  | no   |
| LBS_045       | yes        | yes               | yes               | probably              | reddening, fire-spalling                              | possibly—nearby displaced <i>pini</i>  |
| LBS_046       | partial    | partial           | n/a               | no record             | n/a   | yes— <i>paenja</i> displaced into and out of the house—all broken                                      |
| LBS_047       | partial    | partial           | no                | no record             | n/a   | no   |
| LBS_048       | yes        | yes               | n/a               | no evidence           | n/a   | no   |
| LBS_049       | yes        | yes               | no                | no record             | n/a   | no   |
| LBS_050       | yes        | yes               | no                | no record             | n/a   | no   |
| LBS_051       | no         | yes               | n/a               | possibly              | fire-cracking   | no   |
| LBS_052       | yes        | partial           | no                | yes                   | fire-cracking, reddening (stone adjacent to entrance) | no   |
| LBS_053       | yes        | yes               | yes               | yes                   | fire-cracking   | no   |
| LBS_054       | yes        | yes               |                   | yes                   | fire-cracking (backstone)                             | no   |
| LBS_055       | yes        | yes               | n/a               | possibly              | probable fire-spalling                                | no   |

| LOC survey no | Front curb  | Rear curb        | Doorway structure | Burning           | Evidence for burning                 | Evidence for <i>deliberate</i> slighting  |
|---------------|-------------|------------------|-------------------|-------------------|--------------------------------------|---|
| LBS_056       | yes         | yes              | no                | yes               | much fire-cracking, reddening        | no  |
| LBS_057       | partial     | yes              | yes               | no                | n/a                                  | no  |
| LBS_058       | yes         | yes              | no                | possibly          | yes (on reused stone)                | no  |
| LBS_059       | yes         | yes (7m visible) | yes               | no record         | n/a                                  | no  |
| LBS_060       | no          | yes (long run)   |                   | yes               | "little evidence"                    | no  |
| LBS_061       | partial     | partial          |                   | yes               | fire-spalling                        | yes—rear curb displaced outwards  |
| LBS_062       | partial     | yes              |                   | yes               | fire-spalling                        | yes— <i>pu paerua</i> displaced locally   |
| LBS_063       | yes         | yes              |                   | yes               | fire-spalling                        | yes— <i>pu paerua</i> displaced locally   |
| LBS_064       | yes         | partial          |                   | yes               | reddening, fire-spalling (limited)   | yes— <i>pu paerua</i> displaced locally   |
| LBS_065       | partial     | partial          | no                | yes               | fire-cracking, reddening             | yes— <i>pu paerua</i> displaced locally   |
| LBS_066       | partial     | partial          | n/a               | yes               | 1 cracked stone                      | no  |
| LBS_067       | no          | no               | n/a               | no evidence       | n/a                                  | no  |
| LBS_068       | no          | no               | partial           | no evidence       | n/a                                  | no  |
| LBS_069       | no          | partial          | no                | no                | n/a                                  | no  |
| LBS_070       | fragment    | partial          | no                | no                | n/a                                  | no  |
| LBS_071       | partial     | partial          | no                | no                | n/a                                  | no  |
| LBS_072       | fragment    | no               | yes               | yes               | no record                            | yes— <i>pu paerua</i> fragments lying all around                                    |
| LBS_073       | partial     | yes              | yes               | no                | n/a                                  | yes— <i>pu paerua</i> displaced locally   |
| LBS_074       | fragmentary | partial          | no                | yes               | no record                            | no  |
| LBS_075       | yes         | no               | no                | yes               | no record                            | no  |
| LBS_076       | no          | no               | no                | n/a               | n/a                                  | no  |
| LBS_077       | yes         | no               | yes               | yes               | no record                            | no  |
| LBS_078       | partial     | partial          | no                | yes               | reddening (faint)                    | yes— <i>pu paerua</i> displaced locally   |
| LBS_079       | fragmentary | partial          | no                | no                | n/a                                  | no  |
| LBS_080       | yes         | yes              | no                | yes               | fire-cracking, reddening (in places) | no  |
| LBS_081       | partial     | partial          | no                | no clear evidence | n/a                                  | no  |
| LBS_082       | partial     | partial          | n/a               | no                | n/a                                  | no  |
| LBS_083       | yes         | yes              | no                | yes               | fire-cracking, reddening             | no  |
| LBS_084       | fragmentary | partial          | n/a               | possible          | reddening (on passage stone)         | yes—4 <i>paerua</i> /<br><i>pu paerua</i> lie embedded in the ground on their sides |



| LOC survey no | Front curb       | Rear curb                    | Doorway structure | Burning                                      | Evidence for burning                              | Evidence for <i>deliberate</i> slighting |
|---------------|------------------|------------------------------|-------------------|--|---|--|
| LBS_085       | yes              | yes                          | yes               | yes  | much fire-cracking                                | no                                       |
| LBS_086       | yes              | yes                          | yes               | no evidence                                  | n/a   | no                                       |
| LBS_087       | yes              | yes                          | yes               | unknown                                      | unknown   | no                                       |
| LBS_088       | no               | partial                      | no                | possible                                     | fire-spalling (on inside of backstone)            | no                                       |
| LBS_089       | fragment         | partial                      | no                | no   | n/a   | no                                       |
| LBS_090       | yes              | partially visible but buried | yes               | yes  | fire-cracking, reddening (patch)                  | no                                       |
| LBS_091       | yes              | yes                          | yes               | yes  | much fire-cracking, some reddening, fire-spalling | no                                       |
| LBS_092       | very fragmentary | yes                          | n/a               | yes  | red, friable patch                                | no                                       |
| LBS_093       | no record        | no record                    | no record         | no record                                    | n/a   | no                                       |
| LBS_094       | partial          | partial                      | no                | no evidence                                  | n/a   | no                                       |
| LBS_095       | yes              | partial                      | yes               | no   | n/a   | no                                       |
| LBS_096       | no record        | no record                    | yes               | no record                                    | n/a   | no                                       |
| LBS_097       | no record        | no record                    | no record         | no record                                    | n/a   | no                                       |
| LBS_098       | partial          | partial                      | no                | no clear evidence but survey conditions poor | n/a   | no                                       |
| LBS_099       | yes              | yes                          | no                | yes  | slight reddening (2 stones)                       | no                                       |
| LBS_100       | yes              | yes                          | partial           | no   | n/a   | no                                       |
| LBS_101       | yes              | yes                          | no                | yes  | no record   | no                                       |
| LBS_102       | yes              | yes                          | yes               | no record                                    | n/a   | no                                       |
| LBS_103       | yes              | yes                          | yes               | no   | n/a   | no                                       |
| LBS_104       | fragmentary      | partial                      | no                | no   | n/a   | no                                       |
| LBS_105       | no               | partial                      | no                | no   | n/a   | no                                       |
| LBS_106       | partial          | partial                      | partial           | possible                                     | fire-cracking                                     | no                                       |
| LBS_107       | partial          | partial                      | n/a               | yes  | fire-cracking (one stone)                         | no                                       |
| LBS_108       | partial          | one stone only               | n/a               | no   | n/a   | no                                       |
| LBS_109       | partial          | no                           | no                | no   | n/a   | no                                       |
| LBS_110       | yes              | yes                          | no                | possibly                                     | some reddening                                    | no                                       |
| LBS_111       | yes              | no                           | yes               | no   | n/a   | no                                       |
| LBS_112       | no               | no                           | no                | no evidence                                  | n/a   | no                                       |
| LBS_113       | no               | no                           | no                |  |   | no                                       |
| LBS_114       | yes (left/E)     | yes                          | no                | no evidence                                  | n/a   | no                                       |
| LBS_115       | no               | partial                      | n/a               | no evidence                                  | n/a   | no                                       |



**Appendix 9: selected *hare paenga* surveyed**



**Figures A9.1–A9.2**

*Hare nui* (LBS\_002) and *hare nui* or *hare paenga* (LBS\_003) at Ahu Te Peu (photos: Colin Richards, Lawrence Shaw)







**Figures A9.3–A9.4**

*Hare paepa (LBS\_004 and LBS\_005) at Ahu Te Peu (photos: Adam Stanford, Aerial Cam)*







**Figures A9.5–A9.6**

*Hare paenga* (LBS\_006) at Ahu Te Peu. Scale 0.1m (photos: MST)







**Figures A9.7–A9.8**

*Hare paenja* (LBS\_007) at Ahu Te Peu. Note the Puna Pau red scoria in the pavement and in a peripheral position in the curb (photos: Colin Richards, MST)







**Figures A9.9–A9.10**

*Hare paenja* (LBS\_008 and LBS\_009) at Ahu Te Peu. Again note the red scoria  
(photos: Colin Richards, Adam Stanford, Aerial Cam)







**Figures A9.11–A9.12**

*Hare paenga* (unnumbered and LBS\_010) at Ahu Te Peu, upslope of the “village”  
(photos: Adam Stanford, Aerial Cam)







**Figures A9.13–A9.14**

*Hare paenga* (LBS\_011) at Ahu Te Nui. Scale 0.5m (photos: MST)







**Figures A9.15–A9.16**

*Hare paera* (LBS\_012) upslope of Ahu Te Nui. Note the red scoria from Puna Pau in the pavement. Scale 0.1m (photos: Adam Stanford, Aerial Cam, MST)







**Figures A9.17–A9.18**

*Hare paenga* (LBS\_013). Not associated with an *ahu*. Scale 0.5m (photos: MST)







**Figure A9.19**

*Hare paepa or hare nui (LBS\_016) located near Ahu Vai Teka (photo: MST)*





**Figures A9.20**

*Hare paena* (LBS\_019) not associated with an *ahu*. Note the “non-functional (i.e. pu-less) continuation of the curb at both ends, the paving in these and the Puna Pau red scoria (photos: MST)







**Figures A9.21–A9.22**

*Hare paenā* (LBS\_021 and LBS\_022) at Ahu Maitaki te Moa. LBS\_021 is filled with colluvium (photos: MST)







**Figures A9.23–A9.24**

*Hare paenā* (LBS\_024) at Ahu Vai Mata. The doorway is orientated just to the left of the *ahū* and an inhumation burial (**Figure 36**, bottom). Scale 0.5m (photos: MST)







**Figures A9.25–A9.26**

*Hare paenja* (LBS\_026 and LBS\_028) at Ahu Vai Mata. The overturning of the *pu paenja* comprising LBS\_026 suggest that the house was deliberate slighted. Scale 0.5m (photos: MST)







**Figure A9.27**

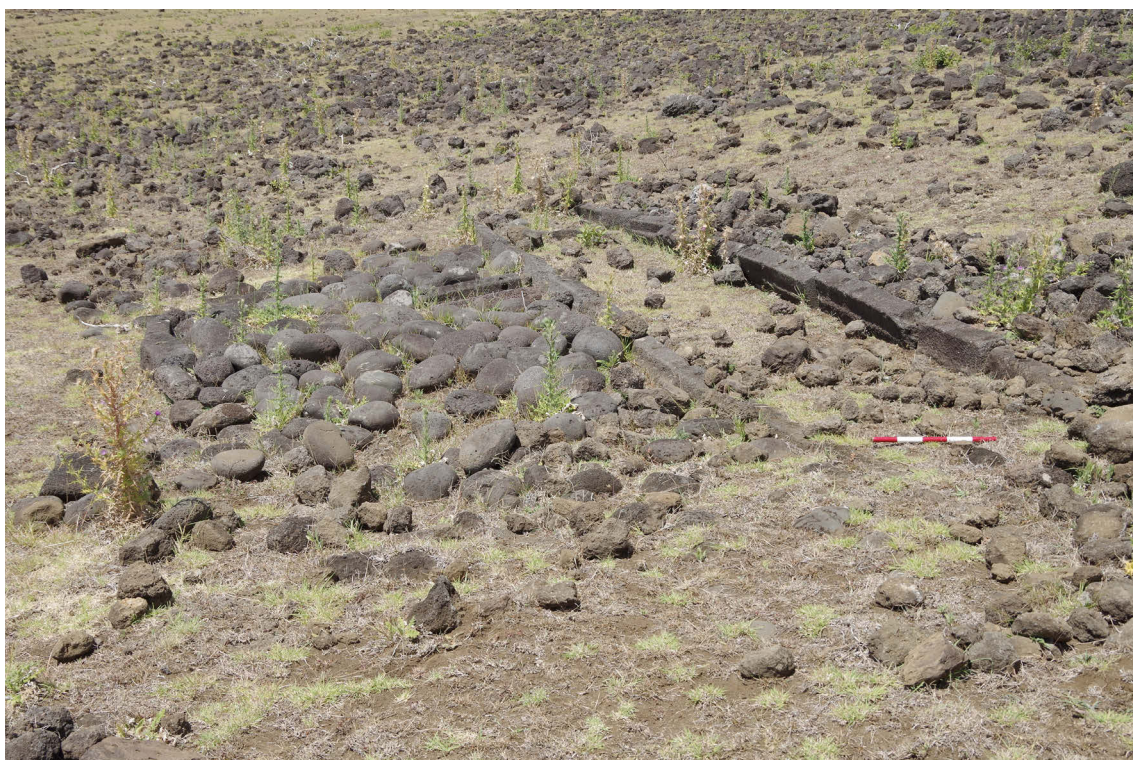
*Hare paena* (LBS\_029) at Ahu Vai Mata. Again the overturning of the *pu paena* suggest that the house was deliberate slighted. Scale 0.5m (photo: MST)





**Figures A9.28–A9.29**

*Hare paenga* (LBS\_032 and LBS\_033) at Ahu Vai Mata. LBS\_032 is filled with colluvium; the left (near) end of LBS\_033 is also buried. Note also the displaced *pu paenga* in the former. Scale 0.5m (photos: MST)







**Figures A9.30–A9.30**

*Hare paenja* (LBS\_034 and LBS\_035) at Omohi, a petroglyph site with no known proximate *ahu*. LBS\_034 is filled with colluvium. Scale 0.5m (photos: MST)







**Figures A9.31–A9.32**

The *hare nui* Hare o Hae (LBS\_037) and a boat-shaped house without *pu paepa* (LBS\_038) in Hana O'Teo. Both are closely associated with *ahu* but neither obviously reference them (*photos: MST*)







**Figures A9.33–A9.34**

*Hare paena* (LBS\_040 and LBS\_042) at Ahu Papa Tekena. Both have curving *pini* ends. Scale 0.5m (photos: MST)







**Figures A9.35–A9.36**

*Hare paena* (LBS\_043) inland of an unnamed *ahu* (probably Englert 67) just east of Ahu Papa Tekena. The house entrance passage is not orientated on the *ahu*. Scale 0.5m (photos: MST)







**Figure A9.37**

*Hare nui* or *hare paēa* (LBS\_044) inland of an unnamed destroyed *ahu* (probably Englert 69). Scale 0.5m (photo: MST)





**Figures A9.38–A9.39**

*Hare paenga* (LBS\_045). Not obviously associated with an *ahu*. Note the reddening and fire-cracking in the *pu paenga* adjacent to the entrance (*photos: MST*)







**Figures A9.40–A9.41**

More or less destroyed *hare paenga* (LBS\_047) at Tuu Ko Ihu upslope of Ahu Te Ipu Pu and partially buried *hare paenga* (LBS\_049) on the beach behind Ahu Iho Areo  
(photos: MST, Adam Stanford, AerialCam)







**Figures A9.42–A9.43**

*Hare paera* (LBS\_050) on the lower slopes of Maunā Auhepa, Anakena (Heyerdahl and Ferdon, 1961, pl. 40c; Smith, 1961a, fig. 76)







**Figures A9.43–A9.44**

*Hare nui* (LBS\_051) at Anakena. Scale 0.4m (photos: MST)







**Figures A9.45–A9.46**

*Hare paenga* at Ahu Papa Iti (LBS\_052) and Ahu Heki'i (unnumbered). Scales 1m (tape measure) and 0.5m (photos: MST)







**Figures A9.47–A9.48**

*Hare paenja* (LBS\_053) at Ahu Heki'i (photos: MST)







**Figures A9.49–A9.50**

*Hare paenga* (LBS\_054) looking across the plaza of Ahu Te a Kava, and the nearby Hare of Aio (LBS\_055), at the foot of Maunā Koro Rau (*photos: MST*)







**Figure A9.51**

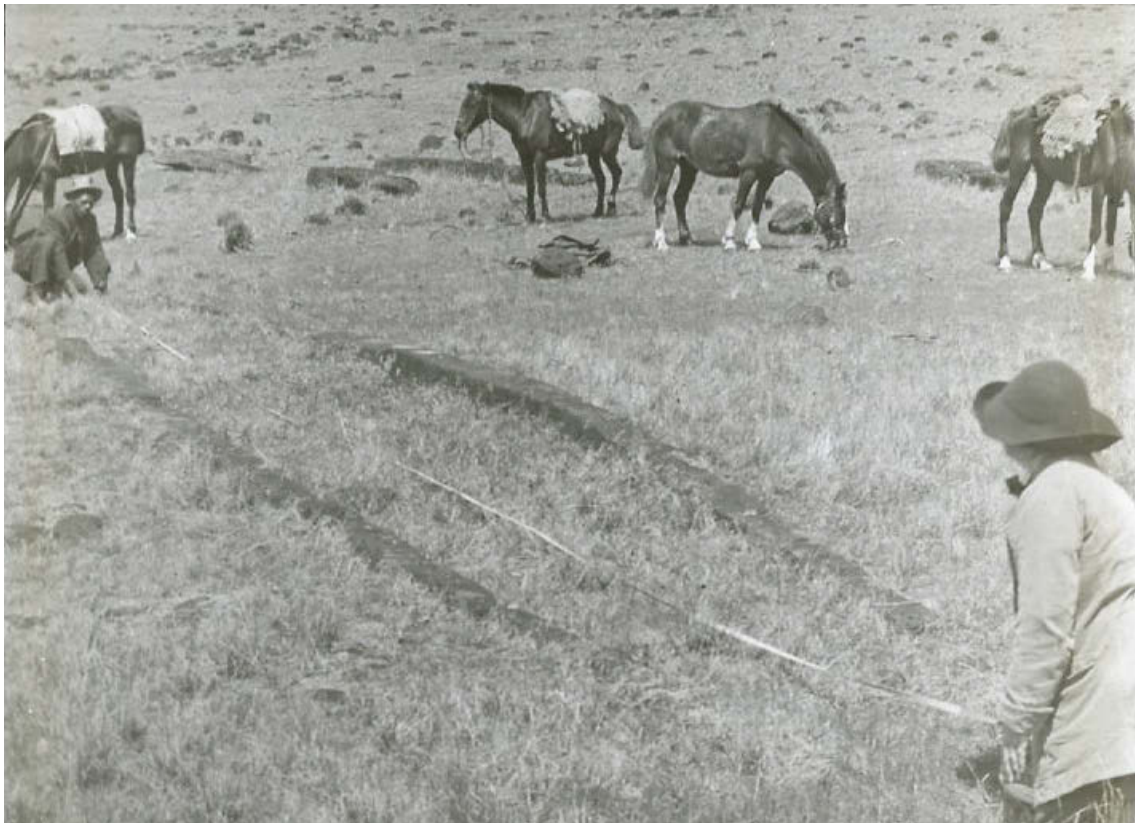
*Hare paenja* (LBS\_056) near Ahu Hana Tau Vaka . Note the reddening. Scale 0.5m  
(photo: MST)





**Figures A9.52–A9.53**

*Hare paenga* (LBS\_057) at Ahu Mahatua and the same house being surveyed by the Routledge expedition (*photos: MST, unknown*)







**Figure A9.54**  
*Hare paenā* (LBS\_064) above the Vinapu ahu complex (photo: MST)





**Figures A9.55–A9.56**

Boat-shaped house pavement (LBS\_072) and *hare paenga* (LBS\_073) at Ahu Akahanga. In LBS\_073, note the very long, collapsed backstone behind what survives of the house's entrance passage (*photos: Adam Stanford, Aerial Cam*)







**Figures A9.57–A9.58**

Possible *hare nui* (LBS\_074) and *hare paepa* (LBS\_077) at Ahu Akahana. The *paepa* in LBS\_074 have no *pu* and it is postulated therefore that it was abandoned prior to completion (photos: Adam Stanford, Aerial Cam, Colin Richards)







**Figures A9.59–A9.60**

*Hare paenga* (LBS\_080) at Ahu Hoa Anja Vaka o Tua Poi. Note the ends without *pini* or *pu paenga* and the peripheral use of local red scoria (photos: MST)







**Figures A9.61–A9.62**

*Hare paenga* (LBS\_081 and LBS\_082) to the rear of Ahu Oroī. Note the displaced Rano Raraku tuff *paenga* (photos: Adam Stanford, AerialCam)







**Figures A9.63–A9.64**

*Hare paenga* (LBS\_083) at Ahu Oroï. The house references neither the *ahu* nor the nearby “transit” *moai* (below) (photos: MST)







**Figure A9.65**

*Hare paena* (LBS/ 084) at Anu Orot. The on-site displacement of the house's *pu paena* on what is a completely level site suggest that it was deliberately slighted. Scale 0.5m (photo: MST)





**Figures A9.66–A9.67**

*Hare paeja* (LBS\_085 and LBS\_086) both on the line of the Ara Moai. LBS\_085 abuts or is abutted by the Tuta'e manavai complex. Note once again the peripheral use of local red scoria (photos: Adam Stanford, AerialCam, MST)







**Figure A9.68**

*Hare paena* (LBS 087) inland of Ahu Teteja and close to the postulated line of the Ara Moai. Note the continuation of the curb using stones without *pu* and the paving. Scale 0.5m (photo: MST)





**Figures A9.69–A9.70**

*Hare paepa* (LBS\_088), one of a pair of good quality houses facing the Ara Moai.  
Scales 1m and 0.5m (photos: Adam Stanford, AerialCam, MST)







**Figures A9.71–A9.72**

*Hare paenga* (LBS\_091 and unnumbered) associated with the Hana Maihiku *ahu* complex. The unnumbered house, which was not recorded by LOC, is located immediately in front of the wing of Ahu Te Ihu (photos: MST)







**Figures A9.73–A9.74**

*Hare paenga* (LBS\_099) on the Ara Moai. The continuation of the curb consisting of stones without *pu* includes one of Rano Raraku tuff. Scales 1m and 0.5m (photos: Adam Stanford, AerialCam, MST)







**Figures A9.75–A9.76**

*Hare paepa* (unnumbered and LBS\_104) at Ahu Tongariki. The unnumbered house, close to the current entrance to the site, was not surveyed by LOC owing to uncertainties about its originality (photos: Lawrence Shaw, MST)







**Figure A9.77**

*Hare paena* (LBS\_105) at Ahu Tonariki. The very large backstone of non-local lava is one of two candidates for Routledge's "booty... from the north side of the island" (1919, p. 216) (photo: Colin Richards)





**Figures A9.78–A9.79**

*Hare paenga* (LBS\_106 and LBS\_107) at Ahu Tonariki. Scale 0.4m (photos: MST)







**Figures A9.80–A9.81**

*Hare paenga* (LBS\_108 and LBS\_109) at Ahu Tongariki (photos: MST)







**Figures A9.82–A9.83**

*Hare paenā* (LBS\_110) inland of Ahu Te Pa Hama Te. Note the curved foundation/wall incorporating *pu paenā* to the rear of the house (below) (photos: MST)







**Figure A9.84**

*Hare paenga* (LBS\_114) at Ahu Riki Riki (photo: MST)







